

INTERIM REPORT: HOUSING CALCUTTA METROPOLITAN DISTRICT

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**CALCUTTA METROPOLITAN PLANNING ORGANISATION
GOVERNMENT OF WEST BENGAL**

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Calcutta Metropolitan Planning Organisation
Government of West Bengal
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1. INTRODUCTION - SUMMARY OF FINDINGS AND CONCLUSIONS

Introduction - The Interim Report and the CMPO Work Programme in Housing

Calcutta's residents have long understood from direct experience

NOTE: The graphics referred to in the text could not be included in the multiple copies of the report. (These are: The Public Sector Housing Gap; Occupancy Density in Relation to Per Capita GNP; and four sketches relating to housing units and scheme layout.) Two other graphics relating to Residential Blocks and Community Core and Residential Area (Schematic Plans 1 and 2, referred to on pages 56 and 57 of this text) appear in the BASIC DEVELOPMENT PLAN, following p.110; kindly refer to them in your copy of that book.

for a realistic solution to the most immediately serious aspect of the overall problem — the existing bustee. This work culminated in the design of the extensive "Bustee Improvement Programme" which was originally proposed to Government in 1964, and the presentation of a related Bill in the State Legislation in 1965.

Following this, the Organisation shifted a major share of its attention to a series of more comprehensive housing studies. These have been oriented to the development of two major products: first, the general statement of proposed housing policy in the Basic Development Plan for the Calcutta Metropolitan District, 1966-1986, which was published in December 1966, and second, a full and more detailed report on proposed housing policies and programmes to be completed by the end of 1967.

Perhaps our most important conclusion, suggested in the Basic Development Plan but confirmed only by more recent studies, is that despite the tremendous obstacles to be overcome and despite the apparent lack of success of housing programmes undertaken to date, there is hope for positive

change. While a totally satisfactory solution may not be forthcoming for many years, a new practical and realistic approach by government can assure the provision of decent basic living accommodations for a substantial part of the CMD population by 1986.

The conclusion above is the central reason for the publication of this "Interim" Report. While our final analyses of all aspects of the problem are not complete, enough is known at present to prepare a base for immediate action: to delay this action, even for a period of a few months, would be a serious loss in a circumstance where the need is so great. The major purpose of this report, then, is to outline the key features of a new approach to housing in Metropolitan Calcutta, to suggest a starting point, and to urge that the start be made as soon as is humanly possible.

Summary of Findings and Conclusions

The following 14 paragraphs summarise the findings and conclusions of the CMPO studies undertaken to date. The first five, attempt to describe the dimensions of the metropolitan housing crisis. Points 6 through 11 set forth a series of general guidelines for public housing policy which offer a realistic approach to meeting this crisis. The remaining three suggest opportunities for action which could be undertaken within the current year.

1. The need for new housing in the Calcutta Metropolitan District is enormous, yet the current level of production is very low and thus the deficit increases rapidly each year. In the CMD in 1961 over four lakhs of housing units (about one-third of the total) had non-permanent, kutchha walls. Housing of any type was in such short supply that more than two lakhs of new units would have been required just to eliminate overcrowding and provide for the houseless population. Year by year this remarkable deficit is growing rapidly, not declining. To accommodate new population growth alone, even at fairly low standards, an average of 65 thousand new units per year would be needed between 1961 and 1986. Total current pucca housing production in the CMD however is almost certainly less than one quarter of this amount.

2. The most basic cause is of course, the lack of effective demand. The vast majority of CMD households cannot afford to rent, let alone purchase, conventional pucca housing. It has been roughly estimated that no household in the lowest 45 per cent of all CMD households can afford to pay more than Rs. 28 per month for housing, and that no household in the lowest 85 per cent can afford more than R. 78. The latter amount, R. 78 per month, would be an unexpectedly low price to pay for a new pucca house in Metropolitan Calcutta today. The lack of any system of reasonable mortgage lending means further that even for the middle income groups there is little opportunity to accumulate enough money to make the purchase of a home a realistic ambition.

3. The private housing industry however does not respond sensitively to the level of demand that does exist. Without substantial institutional change, it cannot be expected to expand production significantly. The private market today is unable to respond even to the low level of effective demand that does exist due to a series of problems and bottle-necks, for example: the high cost, uneven quality and general shortage of construction materials; the generally inefficient organisation and management of the construction industry itself; the use of inefficient and tradition-bound construction practices; and the lack of an active process of new land development.

4. Public housing construction in recent years has met only a very small share of the total need and generally has not been oriented to those sections of the population where the need is greatest. Between 1961 and 1965, public agencies in the CMD built only about five thousand new housing units per year. Most of these were built under Government of India Schemes which require high (pucca) standards, but are heavily subsidised. Even so rent levels for the most part are too high to reach the lowest income groups.

5. The share of public financial resources which has been devoted to housing is extremely small and is likely to remain so in the future. Over the Third Plan the Government of India spent an average of Rs. 22 crore per year on its Social Housing Schemes. According to Fourth Plan draft outline of last August, the comparable amount may be on the order of Rs. 28 crore between 1966 and 1971. Yet, the construction costs alone to produce 65 thousand pucca units per year in the CMD, even at modest standards, would be Rs. 31 crore. In an economy seeking rapid economic growth, however, it is not surprising that only a small amount of resources can be devoted to housing. Comparatively, each rupee invested in housing adds a negligible amount directly to the growth of the economy while it takes funds away from other forms of investment (such as industry and agriculture) which do make direct contributions to economic development and rising incomes. But housing of a kind which the community can afford is a basic need.

6. In light of these circumstances, a new and dynamically expanded public housing policy must be adopted. Its central objective must be to provide of the maximum possible number of decent basic living accommodations, rather than to produce housing of the highest quality. It is clear that a tremendous expansion of housing production in the CMD will be required to even begin to have an impact on the overall problem. Yet, resources are acutely scarce. To create a notable expansion then, every rupee spent on housing must be spent with maximum productivity. The drastic reduction of costs per family accommodated is an obvious necessity. Rigid reliance on conventional "pucca" standards would be analogous to the case of a poor man who has four sons, and deciding to "maintain his high standards," provides a good meal for one but has no money left to provide any food at all for the other three. This does not mean however that expansion can take place

only by the acceptance of fully "kutchha" standards. Preliminary studies indicate that creative new approaches to design, can produce decent, sanitary and pleasant living accommodations at high densities and with a minimum use of costly materials and techniques.

7. A second objective is that living accommodations must be distributed equitably in relation to real needs -- this means that the primary emphasis must be on meeting the needs of the lowest income groups. In the lowest income groups, the need is both quantitatively and qualitatively the greatest. These groups are least able to provide decent accommodations for themselves. Any programme that is to be truly "equitable" must therefore assure them primary emphasis.

8. These objectives imply that the existing housing stock, even in slums, must be preserved and improved rather than cleared. In slum clearance schemes funds must be spent both to demolish housing and to replace it -- after a very high expenditure, no net additions to the housing supply have been created. Under available resources the conditions of only a very few families could be improved by this means. Yet for the same cost it might be possible to improve the quality of the living environment in the existing slum and build additional housing as well. Slum clearance must therefore be limited only to those places where congestion and squalor create severe hazards to the effective functioning of the city and/or prevent important changes in activity patterns.

9. To use resources productively in new development government funds must be concentrated on the provision of decent environmental conditions (land and supporting infrastructure) rather than on the provision of housing itself. The most severe problems of current Calcutta slums are the uncollected human wastes, the polluted stagnant water which does not drain away, the lack of open space, the lack of a fresh water supply, the dark unlit lanes, the litter and the filth, the non-existence of community facilities and services. These are environmental problems, not problems of the housing unit itself. Resources are likely to be so scarce that government will be doing very well indeed if its own funds can provide the basic land and infrastructure at a sufficiently massive scale to prevent such environmental deficiencies for the future population.

10. With very few exceptions, government funds should not be used to subsidise new housing, although government must play an active role in the process by which new housing is built. It is absolutely certain that government could not allocate sufficient funds to housing for low income people to even begin to make an effective impact on the problem. In this context any subsidy discriminates in favour of a very few at the expense of the great majority. This point requires therefore that decent shelter must be produced at a sufficiently low cost so that it can be covered by rents low income people can reasonably afford to pay. Again, design studies

indicate that this is possible. This also requires however that government in addition to providing the basic infrastructure, must play an active role in the process by which housing is built: establishing the legal and administrative framework, suggesting realistic designs, aiding in material procurement and production, harnessing sources of private capital, undertaking construction directly, and generally expediting and offering incentives.

11. A programme must be undertaken to improve the functioning of the private housing market. In no country has the job of housing been met solely by government. A strong private market is a needed adjunct to a strong public programme. Through innovation in technique and institutional changes it should be possible to dramatically improve the effectiveness of the market in Metropolitan Calcutta. Possibilities include: the development of new construction materials, the general improvement of the quality and flow of existing materials, improvements in organisation and management practices and building techniques, the development of new and more efficient forms of housing, the evolution of a large, stable and effectively liberalised system of housing finance.

12. Work should begin immediately on a pilot project as the first step in developing a massive "New Urban Settlements Programme." A massive New Urban Settlements Programme, embodying the principles discussed above, must be instituted as soon as possible. The CMO is now preparing design studies for several sites in the metropolis which might be used for the first pilot project. Joint sponsorship of the project by the State Housing Directorate, the Calcutta Improvement Trust and/or the Howrah Improvement Trust is to be initiated.

13. The implementation of the "Buster Improvement Programme" deserves the highest of priorities and should be started as soon as is considered feasible. This programme is now long awaited, but it will remain as what must be considered as the only basically practical approach to the problem of the Calcutta buster. Its implementation at the earliest possible time must be strongly urged.

14. Before the end of this year, consideration should be given to the strengthening of the administrative and fiscal framework for housing in West Bengal. The long range success of both of the above programmes depends heavily on the development of a strong administrative force for housing in the State and proper fiscal mechanisms through which housing funds can be channelled, expanded, and used to maximum advantage. The mechanism of a "State Housing Board" has proven very successful for the former purpose in other states and would seem to offer promise for West Bengal. For the latter purpose, several proposals have been made concerning the viability of a State Urban Housing Finance Corporation. These proposals would have to be studied carefully to secure an appropriate means of adaptation in this context, however, they offer an important potential.

2. DIMENSIONS OF THE HOUSING CRISIS

The National Context

The selection of an urban housing strategy should be made within the context of the pattern of urbanisation in the country. In India, surprisingly enough, the process of urbanisation is occurring at a relatively leisurely pace. (See Table 1.) Nonetheless the figures involved are still tremendous. Over 80 million people already live in India's urban areas. Here they maintain a rate of natural increase of between 1.5 and 2.0 per cent per annum which suggests approximately 40 million births in the next 25 years. With a declining death rate this will undoubtedly result in a large net increase in the urban population by natural increase alone but migration will add millions more.

The distribution of this vast increase in urban dwellers is in itself a problem of great concern to the planners of India. At the moment approximately one-fourth of the total urban population of India (21.5 million people) is located in the eleven largest cities. (See Table 2.) Furthermore, the class of cities over 100,000 population (the largest class) make up the

Table 1 Population Projections for India 1961-1986

Year	India Population (Million)	Per Cent Urban in India
1921	251	11.4
1931	279	12.1
1941	319	13.9
1951	361	17.3
1961	439	18.0
Projections	I	II
1966	492	18.1
1971	555	18.7
1976	625	19.3

Projection I

1961 Study Group of the Planning Commission, (Third Five-Year Plan -- Notes on Population and Employment, Table 1, Column 4, p.750).

Projection II

Estimated urbanisation rate of Logistic Curve.

fastest growing of the six classes of cities set forth by the Census of India. This trend has been identified and specific policy measures taken during the Second and Third Five-Year Plans such as attempting to stop industrial development in the largest cities in favour of decentralisation and the establishment of new towns. These policies have for the most part not been successful in stemming migration to the major urban centres. It can be assumed that these trends will continue during the next two Five-Year Plans in any case and the major impact of new urbanisation will be on the largest of the existing cities.

Besides the sheer magnitude of the urban population there is the severe complication of low incomes for the vast majority of the people. Table 3 illustrates this problem clearly. Even allowing for the estimated improvement of income over the last six years it is still obvious that at least 60 per cent of the households in urban India earn less than Rs.2,000 per year and probably 25 per cent of the households earn less than Rs.1,000 annually. If it is assumed that households at these income levels cannot

Table 2 Population Growth of Major Metropolitan Cities in India During 1931-61*

Name of City	Population		(add 000)	1961	Variation 1931-61
	1931	1941			
Calcutta Metropolitan District					
Greater Bombay	2485	4054	5253	6721	4236
Madras	1303	1695	2839	4152	2849
Delhi	647	777	146	1729	1082
Hyderabad	447	696	1437	2344	1897
Ahmedabad	667	739	1086	1251	784
Bangalore	314	607	928	1206	892
Kanpur	311	411	786	1207	896
Poona	244	487	708	971	727
Lucknow	263	350	600	737	474
Nagpur	275	387	497	656	381
	242	329	485	690	448

Source: Census of India 1931-61

*Population Growth and Urban and Regional Planning - A Background Paper contributed to the Asia Population Conference: 1963. Town and Country Planning Organisation, Government of India, Ministry of Health, Table VII.

afford more than 15 per cent of their income for rent than monthly rentals of more than Rs.17 per month cannot be paid by 50 per cent of the urban households and 25 per cent cannot pay more than Rs.9 per month. This low capacity to pay rent precludes these families from utilising the present Government of India schemes regardless of the amount of subsidy or the attractiveness of the projects with the exception of the "open plot scheme."

Table 3 INCOME PER HOUSEHOLD PER EARNER AND SHARE IN THE AGGREGATE INCOME OF DIFFERENT INCOME CLASSES (URBAN INDIA, 1960)

No.	Income Class (income before tax) (Rs.)	Weighted per cent of House- holds ¹	Average Number of Earners per Household	Average Disposable Income per Household (Rs.)	Average Size of Household	Number cf Interviews
1	2	3	4	5	6	
1.	under 500	13.6	1.1	300	3.0	466
2.	500-999	28.9	1.4	753	4.2	1,028
3.	1,000-1,999	32.5	1.5	1,390	5.1	1,194
4.	2,000-2,999	10.6	1.7	2,387	6.3	473
5.	3,000-3,999	5.6	1.7	3,476	6.6	273
6.	4,000-4,999	3.1	1.6	4,487	6.4	196
7.	5,000-5,999	1.7	1.9	5,438	7.7	141
8.	6,000-7,999	1.7	1.9	6,706	7.3	173
9.	8,000-9,999	0.7	1.9	8,674	7.3	95
10.	10,000-14,999	0.8	2.0	12,292	7.8	155
11.	15,000-24,999	0.5	2.0	18,867	8.4	100
12.	25,000 or over	0.3	1.7	40,452	7.2	87
13.	all classes	100.0	1.5	1,862	5.0	4,381

¹ Denotes the estimated per cent of households in urban India covered by the survey. It may be noted that the survey covered households (and household population) in towns with a population of 10,000 or more according to the 1951 Census, excluding Delhi. The non-household population in these towns such as institutional population, beggars and pavement-dwellers was omitted from the purview of the study. The survey results are estimated to be representative of 12.1 million urban households.

² Denotes the number of interviews on which estimates are based.
Source: "Urban Income and Saving." National Council of Applied Economic Research, Delhi (1962).

The present Government of India public housing provisions fall mainly under four schemes. The most money has been sanctioned for the Industrial Housing Scheme where the maximum allowable rent is Rs.36 per month and the income limitation is set at Rs.4,200 per year. An almost equal amount of money has been sanctioned for the Low Income Housing Scheme where the rent is generally set at Rs.27 per month and the maximum allowable annual income of a tenant family is Rs.6,000. The Slum Clearance and Economically Weaker Section Housing Scheme has had less investment, but serves families with a maximum income of Rs.2,000 per year with maximum allowable rents around Rs.25 per month. Finally, the Middle Income Housing Scheme, which is essentially on a loan basis, serves people in the income range of Rs.6,000 to Rs.15,000 per year.

Accepting the maximum allowable annual income at the ceiling of the income groups served, and establishing a floor by assuming that a family can afford 15 per cent of their annual income as rent it is possible to distribute the percentage of funds sanctioned for housing among the income distribution of urban households. When this curve is compared to the curve of income distribution of urban households (see Graph I) it can be readily seen that the bulk of public investment in housing is made to benefit the upper 25 per cent of the income groups of the country. For most of the lower 75 per cent of urban households there is no benefit whatsoever. Naturally there are isolated cases where families with less than Rs.2,000 income per year are sheltered in some of the completed projects, but these are really exceptions that prove the rule.

It should be noted that even though the full investment of housing funds is assigned to the population with incomes between Rs.2,000 and Rs.15,000 this still is far short of the total need for housing in these income groups. But this is incidental to the main point of the graph which is to underscore the need for a new housing programme which will be directed toward the lowest income people in urban India.

Dimensions of the Crisis: Metropolitan Calcutta

As difficult as the national problem of urban housing may be, conditions and prospects in Calcutta are consistently more severe in almost all respects. This is clearly described by the following text extracted from CMPO's Basic Development Plan for the Calcutta Metropolitan District, 1966-1986.

Housing presents the most graphic portrayal of the crisis of Metropolitan Calcutta. The existing shortage in the area is immense. The quality of housing that does exist is poor on the average and at its worst indescribably squalid. Shelter is so basic a human need and its condition so deeply affects the character of everyday life, that this must be regarded as one of the most tragic of the CMD's current deficits.

As shown in Table 4, of the 6.7 million people in the CMD in 1961, 3,66,000 were housed in institutions of one type or another (hospitals, colleges, jails etc.). At least another 30,000 had no housing at all. These were the pavement dwellers of Calcutta. This figure is certainly on the low side of a series of estimates of how many people actually live on the streets in Calcutta. The real number is extremely difficult to measure, fluctuating greatly with the seasons; but the existence of this group is obviously a fact of life in the city and its suburbs. Their miserable plight is evident throughout the central city areas, and requires no elaboration.

The remaining 63,25,000 were in the 1961 "household population" -- people residing in some form of non-institutional shelter. Altogether, they occupied 13,29,000 housing units, providing, on an average, one unit for every 4.76 persons. This ratio itself is not particularly high. The real problems of the existing housing supply arise from two other factors. First, most of the units are extremely small in relation to the number of people who are forced to live in them. Second, the majority are in a squalid condition with few of the physical amenities of decent homes.

The first point implies overcrowding of remarkable proportions. This can be illustrated by two simple facts: (a) in 1961, the average CMD housing unit size was only 1.55 rooms; the average occupancy rate was 2.99 persons per room; (b) it has been estimated that 77 per cent of all Calcutta families in 1957 had less than 40 square feet of living space per person.

Averages even as low as these tend to underestimate the problem. The distribution of housing space is similar to that of income: a relatively small minority at the top have a disproportionately large share. This means that the majority are living at standards far below 40 square feet per person. It must be remembered also that this latter group is not composed solely of single men. Countless families also are forced to live in unbelievable congestion in one room, under intolerable conditions of sanitation and water supply. Under such circumstances healthy family living, even in its most humble form, is impossible.

The second point -- housing condition -- is more difficult to demonstrate with precise figures. With Census data it is possible to determine only that a large share of the units have walls constructed with non-permanent materials. But no data are available to describe the extensive deterioration in the remaining structures. Although initially built with pucca materials, many of these buildings permit conditions of even higher congestion and offer less light and air to their inhabitants than do kutchha structures.

Important as they are, these existing problems are overshadowed by the prospect of the future. Providing adequate accommodation for the expected increase in population appears to be an almost insurmountable task in itself, let alone the correction of present ills. To gain some sense

Table 4 Population and Housing Supply, CMD, 1961

	Calcutta	Other CMD Urban	CMD Rural	Total CMD
Population (in thousands)				
Total Population	2,927	3,065	729	6,721
Housed in Institutions	274	82	10	366
Houseless	18	5	7	30
Household Population	2,635	2,978	712	6,325
Housing Supply (including kutchha huts) (in thousands)				
Occupied Housing Units ^b	584	592	153	1,329
Occupied Rooms*	342	932	239	2,113
Average Rooms per Unit*	1.61	1.57	1.28	1.55
Vacant Units	25	27	8	60
Overcrowding and Condition				
Household Population per Unit	4.51	5.03	4.65	4.76
Household Population per Room*	2.80	3.20	2.98	2.99
Units with Permanent Walls, (thousands)* ^c	437	387	79	904
Per Cent of Units with Non-permanent Walls* ^c	25.2	34.6	57.8	33.8

Source: Derived from Census of India, 1961, as explained in CMD Basic Development Plan Technical Supplement, July 1966.

- Notes: (a) Starred items (*) are estimates based on sample Census data for the CMD.
(b) A housing unit is defined here as a "Census House" used partly or wholly for dwelling purposes.
(c) Permanent walls are interpreted to be walls made of concrete, cement, stone or burnt brick only.

of the magnitude involved an approximation has been made of the new housing that would be required to solve both existing and future needs. This is based on a few simple standards which represent a more or less conventional view of minimum housing.

Table 5 shows that if average standards of 2.5 persons per room and 2 rooms per housing unit are used, 4,30,000 new rooms, or 2,15,000 new units, would be needed to eliminate existing overcrowding and provide for the houseless population of 1961. Adding the amount required to accommodate the expected CMD population growth and maintain the 1961 vacancy rates, the total 1961-86 requirements would be 2.5 million new rooms, or 1.3 million new housing units.¹ If the suggested space standards were to be met, it

¹This amount, as vast as it is, would not create a totally "satisfactory" housing supply by 1986, since it leaves out any provision for the replacement of structures in substandard condition. At present there is no reliable estimate of replacement needs.

Table 5 CMD Housing Needs Estimate, 1961-86
(in thousands)

	Total Rooms	Total Housing Units	Units/ Year 1961-86
1961 Housing Stock			
Occupied Housing	2,113	1,329	-
Estimated Vacant Housing	95	60	-
Total Housing	2,208	1,389	-
1961-86 Requirements			
To eliminate overcrowding and provide for the homeless as of 1961	430	215	11
To accommodate 1961-86 growth of non-institutional population	2,112	1,056	53
Provision for Vacancy	114	57	3
Total	2,656	1,328	67

- Notes: 1. Assumed Average Standards: (a) 2.5 persons per room in occupied units; (b) 2 rooms per unit average for total units. In these estimates, because of the lack of adequate data, no provision is made for one part of the total requirement -- the replacement of inadequate and seriously deteriorated structures.
2. Population: (a) 1961 non-institutional population -- 63,55,000; (b) 1961 ratio of non-institutional Population to total population = 0.946; (c) 1961-86 total population growth = 55,80,000; (d) 1961-86 non-institutional population growth = 57,79,000.
3. Vacancy Rate: The 1961 rate, 4.3% per cent of total housing units, applied to total needs above.

would be necessary to construct new housing units over these twenty-five years equal to 84 per cent of the total 1961 supply.

These quantities are even more startling when they are seen in relation to the current output of the construction industry in the CMD. It is estimated that in the early 1960's between 6,000 and 9,000 pucca units were built per year in the Metropolitan District. According to Table 5, however, the accommodation of new population growth alone requires 53,000 additional units annually.

This of course does not mean that the population not housed in new pucca structures is now going homeless. Some have to accept even further overcrowding in existing housing. A large part of the remainder have no alternative but kutchha huts, usually in proliferating bustee areas, in conditions of filth and squalor, throughout the CMD. Some must make do with unused night-time space in factories, the passageways of apartment buildings, alleyways or footpaths.

The results of the present failure to provide for adequate and sanitary housing, even at minimum standards, to keep pace with population expansion are visible throughout the cities of Calcutta and Howrah, and in every municipality of the CMD. Everywhere the picture so far as housing is concerned is one of deficit congestion, insanitation, inadequate water supply, extensive bustee areas, high rents and premiums. Everywhere there is a great deal of illegal occupation and squatting on public and private lands -- whether of refugee colonies built out of necessity on the vacant lands of absentee landlords, or of pathetic clusters of squatters in tattered and improvised shelters on public pavements, on the municipal refuse dumps, and indeed on any vacant site. The urban environment in Metropolitan Calcutta is probably deteriorating faster through the sheer inadequacy of housing, with its attendant evils than through any other single cause.

Many requirements of urban life must be met entirely from the public purse, but housing is the joint responsibility of public and private enterprise. To evaluate the chances of meeting the vast housing needs cited above, it is necessary to begin with an analysis of the potential role and capacity of the private sector.

In recent years, private individuals and groups in the CMD have provided very little new pucca residential development. The total local production of new pucca housing probably meets less than ten per cent of the annual need. Even of this small amount the private market produces little -- the majority being built by agencies of Government under a number of different programmes. The results of this great excess of need over supply are obvious. Most new households are forced to: (a) accept further overcrowding in existing structures; (b) construct kutchha huts in the rapidly growing high-density bustee type developments, or (c) remain homeless.

This situation has many causes, but the central and pervasive factor is, of course, poverty. The willingness of private investors to contribute needed resources depends on the level of effective demand; that is, how many households have not only the desire for new housing but also the ability to pay for it. In the CMD, as in all of India, effective demand for housing is extremely low.

The data that would be necessary to measure effective demand in a precise way are not available, but even a cursory analysis demonstrates the point. The 1961 total income in the District has been estimated at Rs.545.5 crore: an average of approximately Rs.340 per household per month. More important than the average, however, is the distribution. A very few families at the top capture an extremely large share of the total, leaving very low averages among the great majority. As noted earlier, a reasonable approximation shows that the lowest 45 per cent of 1961 CMD households probably earned less than Rs.184 per month and the lower 85 per cent less than Rs.518. If a 15 per cent rent-income ratio is assumed, it appears that the lowest 45 per cent could afford no more than Rs.28 in monthly rent;

the lowest 85 per cent no more than Rs.78. It is highly unlikely that, in the private market, a rent of Rs.78 could secure a new dwelling worth more than Rs.7,000 including land. It is equally doubtful that under current practice in 1961 many new pucca dwellings could have been produced for less than that amount. (It would be the equivalent, for example, of a 250 square-foot-unit at Rs.24 per square foot on one cattah of land at Rs.1,000. These standards are certainly below the "typical" product of the local industry.) New pucca housing, therefore, appears to be out of reach for a large percentage of the area's households.

This situation, hopeless as it seems for the low-income groups, is also extremely frustrating for families in the middle-income ranges. They have a consistent income stream, some savings and rising expectations, but often are as unable to secure decent new housing as those at the very bottom of the income ladder.

The words "under current practice," of course, make a great deal of difference in this analysis. With a reduction of the costs of housing or a liberalisation of mortgage terms, more housing needs could be satisfied by existing incomes, low as they are. Today, however, such changes are not forthcoming. Several sets of economic and institutional barriers prevent the supply side from responding at all sensitively to effective demand.

Perhaps the most important relates to nation-wide inadequacies in the provision of building materials. Well-known difficulties include crucial shortages of supply; poor physical quality; lack of product standardisation; and very high prices. To a large extent the producers of materials are unorganised and non-mechanised. All of this has a considerable effect on the price of CMD housing; it has been estimated that materials typically account for 60 to 70 per cent of the total costs of residential construction.¹

A second barrier lies within the construction industry itself. The most frequent criticism is that the industry is poorly organised and tradition-bound. Most of the industry is made up of small independent contractors who operate on a marginal basis. They often are unaware of the opportunities for, or the advantages of, improved practices; but even if they are, they usually regard worker training and experimentation with new techniques as dangerous risks financially. The results are the continuation of wasteful methods, a lack of adaptation to changing consumer desires and a perpetuation of construction costs.

A third set of barriers relates to housing finance. The earlier discussion of income shows that equity financing cannot carry even a relatively affluent CMD family very far in its desire for home ownership. The borrowing of large amounts is a necessity and, unfortunately, the money lender, with his short maturities and excessive interest rates, is too often

¹ Government of India, Ministry of Works and Housing. Report on India's Urban Housing, July 1965. p.112

the only source available. There are alternatives for some. In addition to governmental programmes there are schemes for the employees of various firms, loans from personal acquaintances, private trusts, etc. The Life Insurance Corporation offers several possibilities. Its "Own Your Own Home" scheme, though restricted to policy holders, presents probably the most liberal mortgage terms available in the country. Collectively, however, these alternatives can claim to serve only a small share of potential borrowers. A system of financial intermediaries with sufficient scope and purpose to effectively rationalise and liberalise mortgage lending is a long step beyond current practice.

What is the promise of the private market in the future? Over the next two decades, total household income will grow and it will probably be distributed more evenly. These conditions will reinforce an already existing trend to higher levels of household savings. At the same time, however, land prices and construction costs will continue to climb. There seem to be no strong forces within the market itself to remove the imposing barriers on the supply side. The gap between production and effective demand may become even more noticeable as income and savings increase more rapidly. In short, while some improvements are likely, the private market cannot be expected to make a really significant contribution to the housing objectives cited earlier without substantial institutional change.

If the private contribution to housing supply is to be small, the gap left to be filled by governmental action is immense. Given anticipated scarcities, the massive shifts in public commitment that would be required are obviously impossible. The only reasonable conclusion at this point seems to be that the objective of a decent public housing unit for every family in the CMD by 1986 cannot be met. This conclusion, of course, does not make the search for an appropriate housing policy less relevant, nor does it preclude the expectation that existing housing conditions can be improved substantially. A sense of the vast difference between the total need and available resources may make the search a more realistic one.

3. A REVIEW OF RECENT CMD PUBLIC HOUSING CONSTRUCTION

Since the establishment of the Ministry for Works, Housing and Supply in the Union Government in 1952 there has been an organised public housing programme. Expenditure on housing has increased in each Five Year Plan from an initial Rs.33.5 crore in the First Plan to a proposed Rs.250 crore in the Fourth Plan. The percentage of the total plan funds has, however, stayed a relatively constant 1.7 per cent. The Government of India's housing programme has consisted of housing for government employees and what might be called Social Housing Schemes, the latter consisting of a variety of programmes designed to make housing available for people of low and middle income by a combination of loans and grants.

Housing Provided For Government And Other Public Sector Employees

Long before the programmes for Social Housing to provide shelter to low income group people, the various Government Departments and public concerns like the Railways provided living quarters for a part of their employees.

Within the Calcutta Metropolitan District, housing is provided by the Central Government, State Government and the three public concerns -- the Eastern Railways, the South Eastern Railways and the Port Commissioners. The number of quarters supplied by the State Government to its employees within CMD is not available; however, the number is not very high. Figures for existing flats and houses acquired by the State or the Central Government for this purpose are also not available at present. The total number of dwelling units provided by the various Departments of the Central Government and the public concerns, classified according to room per unit, is shown in Table 6.

Social Housing Schemes

The finance for these schemes is provided by the Central Government as subsidy and loans. The total funds available for the different schemes are allotted to the States by the Planning Commission for each plan period. The fund is finally given to the State against individual projects and the Centre exercises detailed control in implementing even individual projects.

Table 6 Dwelling Units Supplied by Central Government Departments and Public Concerns to Their Employees Within CMD in 1966

Name of Department	1-room	2-room	Units by Rooms			Total
			3-room	4-room	5-room	
Public Works Department		-	-	-	-	660
Civil Aviation	301	353	68	-	-	722
Government Mint	238	55	20	5	1	319
Regional Meteorological Centre	19	47	5	1	-	72
Income Tax	-	42	-	-	-	42
Eastern Railways	11,907	4,027	595	244	74	16,847
South Eastern Railways	2,220	930	58	78	105	3,391
Port Commissioners	9,842	100	79	162	5	10,197
	<hr/> 21,527	<hr/> 5,563	<hr/> 825	<hr/> 490	<hr/> 185	<hr/> 32,250

For example, the State Government cannot transfer funds allotted for one sanctioned project to another sanctioned project under the same scheme, without the explicit permission of the Centre. At present the major schemes related to housing are as follows. (Their year of initiation is given in brackets):

- i) Subsidised Industrial Housing Scheme (1952)
- ii) Low Income Group Housing Scheme (1954)
- iii) Slum Clearance and Improvement Scheme (1956)
- iv) Scheme for Economically Weaker Section (1952)
- v) Middle Income Group Housing Scheme (1959)
- vi) Rental Housing Scheme (1959)
- vii) Land Acquisition and Development Scheme (1959)
- viii) Plantation Labour Housing Scheme
- ix) Village Housing Project

Of the nine types of schemes, the last two are not relevant for the Calcutta Metropolitan District.

The Housing Department is entrusted with the administration of the funds available for housing schemes at the State level. It involves allocation of funds to individual schemes, projects, disbursement of funds to relevant scheme-implementing bodies, individuals, etc. The Housing Directorate (under the Housing Department) implements most of the public schemes in the State. Apart from the Directorate the following departments and agencies also implement public housing within CMD:

- a) The Planning and Development Department
- b) The Calcutta Improvement Trust (operates only within Calcutta Corporation area)
- c) The Howrah Improvement Trust (operates only within Howrah Municipal area. The Trust is yet to complete any housing project).

There is no planning at the State level based upon actual housing needs. The planning activity, so far, has been confined within recommending a few projects under each scheme and demanding funds from the Centre to finance such projects. The Housing Department is yet to develop a housing policy for the State. Apart from the central schemes or individual projects, there is no public housing programme for the urban or rural areas of the State.

Subsidised Industrial Scheme The Central Government provides long-term interest bearing loans and subsidies to the State Governments to construct dwelling units for factory workers. The State Government can build the units themselves or may give a loan to Statutory Housing Boards, local bodies, industrial employees or registered cooperatives of industrial workers. Within the period 1952-63, 164,058 units were sanctioned all over India and 138,318 were actually completed. During the same period 9,479 units were completed in West Bengal as against 12,188 sanctioned.

The Housing Directorate and the Calcutta Improvement Trust are the two public agencies which have implemented and are implementing a number of projects under the scheme within C.M.D. during the decade 1956-66. Apart from these two agencies a few private industries have undertaken a few minor projects for their employees. So far no cooperative housing society of workers have undertaken any project within C.M.D.

Therefore during the decade 1956-66 the total number of dwelling units constructed by the Housing Directorate, C.I.T. and private industries under the subsidised Industrial Housing Scheme, within C.M.D., was as shown in Table 7.

Table 7 Dwelling Units Built under the Industrial Housing Scheme
(by Room.)

Agency	1-room	2-room	Total
Housing Directorate	4,504	2,708	6,562
Calcutta Improvement Trust	1,500*	-	1,500
Private Industries	306	-	306
	6,360	2,008	8,368

*Construction of 84 additional single room units will be completed soon.

The workers earning up to Rs.350 per month are eligible for the scheme. If the income of a worker allotted a dwelling unit under the scheme exceeds the income limit after allotment of the unit, the worker is expected to pay economic rent for the unit.

Lower Income Group Housing Scheme The Central Government provides long-term interest bearing loans to the State Governments to give loans to persons earning up to Rs.6,000 annually to construct their houses. The loan is not to exceed 80 per cent of the total cost of construction at the rate of five per cent interest repayable in 30 years. The scheme has been amended to cover 100 per cent of the total cost, 25 per cent in subsidy and 75 per cent in long-term interest bearing loans, to persons earning less than Rs.3,000 annually in Calcutta, Bombay, Madras and Delhi and Rs.2,400 in other places.

The minimum floor area per dwelling unit under the scheme should be 400 square feet and it may not exceed 1,200 square feet. The maximum cost limit per structure is Rs.12,000 and the maximum amount of loan is Rs.10,000.

The scheme was designed to assist persons with income levels above the limits for subsidised housing (i.e., monthly income above Rs.175 outside Bombay and Calcutta and Rs.250 in those two cities) but not exceeding Rs.500 per month.

Secondly, local bodies, registered and recognised hospitals and institutions can obtain loans, under the scheme, to construct residential houses for their low paid staff. The State Government can also construct houses under this scheme for either selling on hire purchase basis (no loss no profit) or letting out on rent to persons earning less than Rs.6,000 annually. Up to the end of the Second Plan Rs.20 million was sanctioned as loan to individuals, Rs.4.1 million to institutions and Rs.6.27 million for Government public construction of tenements under the scheme all over the State. Total loan was sanctioned to construct 4,208 houses in West Bengal.

During the Third Plan till the end of the year 1964-65, Rs.18.89 million was sanctioned as loan to individuals and institutions to construct 2,952 houses under the scheme. Most of the houses have been constructed in Calcutta, 24-Parganas, Howrah and Hooghly. Only two institutions obtained a loan under the scheme and no housing co-operatives have as yet applied.

Since 1961, the Housing Directorate has taken up 12 projects within CMD to construct 1,504 two-room units for lower income group people. Till the end of the year 1965-66, 952 two-room units (seven projects) have been completed and are under occupation. Total investment for the projects has been approximately Rs.14.500,000. The Calcutta Improvement Trust undertook one project for 414 single-room tenements under the scheme. The project has been completed.

Slum Clearance and Improvement Scheme Under the scheme the State has yet to undertake any project for slum improvement pending legislation of required enactment for slum improvement. However, 17 slum clearance projects have either been undertaken or completed by the Housing Directorate and the C.I.T. within Calcutta Corporation area only. Provisions for slum clearance and improvement projects in the Third Plan was Rs.40 million, of which Rs.10 million was the State's share. Under the scheme the Centre is to bear 75 per cent of the total cost incurred.

The scheme provides a loan and subsidy to undertake any slum clearance or improvement project. The Centre provides 37½ per cent to the cost as subsidy and 37½ per cent as long-term loan. The State concerned is expected to pay another 25 per cent of the cost as subsidy.

Under the scheme either tenements can be provided to eligible slum dwellers (income limit Rs.175 per month in Calcutta, and Bombay Rs.250 per month); or about 1,000 square feet open plot with Rs.150 worth of building material with a latrine (3' x 4') and a bathing platform (4' x 4') can be provided to eligible slum dwellers to construct their own houses. Ceiling cost to construct pucca tenements is Rs.5,100 except in Calcutta and Bombay, where it is fixed at Rs.6,600. Rent for the tenements varies between Rs.11 and Rs.14.50. In Calcutta and Bombay it is between Rs.17 and Rs.21.50. The rent has been fixed to pay the maintenance cost and the 37 per cent loan portion of the scheme.

In the C.M.D., slum clearance activity so far has been confined within Calcutta Corporation area, as the existing Slum Clearance Act (1958) operates within the Corporation boundary. So far no project has been undertaken to distribute plots to slum dwellers to construct their own houses. C.I.T. and the Housing Directorate have built a number of tenements under the scheme.

follows:

<u>Agency</u>	<u>Constructed</u>	<u>Under Construction</u>	<u>Projected</u>
C.I.T.	4,176	412	3,254
Housing Directorate	1,192	400	-
	5,368	812	3,254

Out of these only 800 tenements were constructed during the Second Plan at the cost of Rs.6.1 million. The rest have been constructed during the Third Plan. The most interesting feature is that so far not a single tenement constructed by the Housing Directorate has been occupied. The reason is that the Directorate so far has failed to clear anyone of the slums with its projects.

The Directorate undertook nine projects for slum clearance during the Third Plan. Construction for the first started in 1962 and the rest in 1963 and 1964. So far construction in six projects have been completed and the rest is expected by the end of 1966. The Directorate is implementing the projects under the Slum Clearance Act enacted in 1958.

So far, the C.I.T. has completed six projects which have been occupied. The organisation has two projects under land acquisition, construction for which will start as soon as land is available. So far C.I.T. constructed 2,826 single-room and 1,350 double-room tenements, which are under occupation; 800 single-room tenements, out of these, had been constructed and occupied during the Second Plan. The Trust has a plan to undertake construction of 3,234 tenements in future; 412 two-room additional tenements are under construction.

Scheme for Economically Weaker Section The scheme is to help the persons not eligible for either of the two schemes noted above who have a monthly income of about Rs.175 outside Bombay and Calcutta and Rs.250 in those cities. The scheme finances construction of tenements for these people at 75 per cent in loan, $\frac{1}{2}$ per cent interest payable in 30 years, and 25 per cent as subsidy. No project under the scheme has been undertaken so far.

Middle Income Group Housing Scheme This scheme, formulated in 1959, is financed from outside the Five-Year Plan resource by L.I.C.* to give housing loans to individuals earning Rs.6,000 to Rs.15,000 annually or cooperative housing societies members of which earn between Rs.6,000 and Rs.15,000 annually. The loan covers up to 50 per cent of the construction cost to a ceiling of Rs.20,000.

Under the scheme, the Housing Department has sanctioned a loan of Rs.9.22 million till the end of the year 1964-65 to eligible individuals to construct 5,759 houses, mostly in C.M.D. On a no-profit no-loss basis, the Housing Directorate has undertaken eleven projects to construct 731 units (144 two-roomed and 587 three-roomed) within C.M.D during the Third Plan. Till 1965 only 66 units under these projects have been completed. The rest are under construction; 27 units are to be sold on hire-purchase basis and one project (11 units) has been completed so far.

Rental Housing for the State Government Employees Under this scheme rental flats are built for State Government employees with twenty-year loans from L.I.C. Cost per unit is around Rs.14,000 and floor area per unit is around 475 square feet. Under the scheme about 400 flats have been built so far in the C.M.D.

Land Acquisition and Development Scheme The scheme provides ten-year loans to the State Government to acquire and develop land for house building and related purpose. The purpose of the scheme is to stabilise urban land prices and promote orderly construction development. The land developed under the scheme can be sold to individuals, cooperatives and institutions on a no-profit no-loss basis. The land thus developed can also be utilised for private construction. In C.M.D, the Housing Department has acquired 229.2 acres of land under the scheme during the Third Plan in two areas. The scheme is financed through loans from L.I.C.

The scheme is implemented by the Housing Directorate. Land acquisition is conducted by the Revenue Department on behalf of the Housing Department. From 1960, 10,000 acres of land have been notified for the State. Plans for the schemes have been prepared and are under implementation. The scheme proposes to develop 1,200 plots for public sale. A portion of the area is to be reserved to construct public housing under the social housing scheme and installation of public facilities like drainage, developing parks, roadways

*Life Insurance Corporation of India

and schools. When properly developed the area is expected to house about 17,000 residents. Since plots will be for sale only after 1969, it will take another six or seven years at least for people to build their houses and settling down.

Supply of Public Housing under other Provisions within CMD Apart from the above-mentioned schemes, the Housing Directorate, C.I.T. and the Development and Planning Department have constructed or are constructing rental houses within CMD under other schemes. Under the Rental Housing Scheme the Directorate has undertaken 11 projects to construct 805 (728 two-roomed and 77 three-roomed) apartments for Government employees. So far, 356 apartments (290 double-roomed, 66 three-roomed) have been completed and 449 (438 two-roomed and 11 three-roomed) are under construction. Total investment involved in these projects is Rs.479,518. All these projects had been undertaken since 1961.

Development and Planning Department The Department has 448 apartments (278 two-roomed and 170 three-roomed) in five estates, rented out to the general public as well as to Government employees.

Calcutta Improvement Trust Under its general rehousing scheme the Trust has constructed 955 units (500 one-room, 402 two-room and 53 three-room). These units have been constructed to rehouse occupants of bustee huts or others which had been acquired by the Trust under its renewal and development schemes.

Apart from rehousing, the Trust has also undertaken 11 projects for general housing purpose, four of which have been completed (229 apartments: 218 single-room, 8 double-room and three 3-room) and one is under construction (a 96 single-room apartment). Work for the 6 other projects has not been started pending acquisition of land. Nine more projects are at present in the planning stage.

Summary of Social Housing Schemes

Table 8 shows the total number of units constructed and available for use under different Government Social Housing Schemes within CMD till the middle of 1966.

Future Public Housing Programme in CMD

Both the Housing Department and C.I.T. have a number of 'contemplated' projects to construct Low Income Group, Middle Income Group, Rental and other types of flats within CMD. The contemplated projects of the Housing Department are at present at a comparatively fluid stage as they depend on the funds that will be available under the Fourth Plan. In case of C.I.T. the projected schemes are less fluid as they are not entirely dependent on final allocations from the Plan resources.

Table 8 Housing Units Built under Various Government Schemes to mid-1966

Scheme Agency	1-room	2-room	3-room	Total
Subsidised Industrial Housing				
a) Housing Directorate	4,554	2,008	-	6,562
*b) C.I.T.	1,500	-	-	1,500
Low Income Group Housing				
a) Housing Directorate	-	952	-	952
b) C.I.T.	414	-	-	414
Slum Clearance				
a) Housing Directorate	516	888	-	1,204
b) C.I.T.	2,826	-	-	2,826
Middle Income Group Housing				
c) Housing Directorate	-	96	-	96
Other Schemes				
a) Housing Directorate	-	290	66	356
b) Development and Planning Department	-	278	170	448
c) C.I.T.	500	402	53	955
	<hr/> 10,110	<hr/> 4,914	<hr/> 289	<hr/> 15,313

* 84 additional units will be completed soon

The Housing Department has proposed 35 projects, under various schemes, to construct 11,026 tenements, covering a total area of 119.25 acres within CMD during the Fourth Plan period. In 15 projects, tenements will be built under different schemes in the same location. Areas required, number of tenements to be constructed and number of projects under each scheme are shown in Table 9.

C.I.T. has 16 projects at hand to construct 4,778 tenements or flats. Construction of two projects is to start immediately. Others are expected to be taken up shortly. Exact period when construction for all the projects will start is not known. Number of units, projects, etc., proposed for future construction by C.I.T. are shown in Table 10.

Table 9 Area, Number of Projects and Tenements to be Built under Housing Department Schemes in the Fourth Plan Period

	No. of Projects	Area (in acres)	No. of Tenements
1. Low Income Group Housing	8	40.30	2,284
2. Slum Clearance		4.65	340
3. Subsidised Industrial Housing		13.13	800
4. Middle Income Group Housing		4.94	218
5. Rental Housing Government Employees		12.45	444
6. Middle Income Group and Low Income Combined		69.75	2,934
7. Middle Income Group and Rental Housing Combined		21.28	1,050
8. Low Income Group Slum Clearance Middle Income Group Rental Housing and Subsidised Industrial Housing Combined		51.7	

Table 10 Proposed C.I.T. Tenement Construction

Scheme	No. of Projects	1-room Units	2-room Units	3-room Units	4-room Units	Total
1. Slum Clearance				,374		3,374
2. General Housing	11	81		600	80	1,404
Total	16	81	4,017	600	80	4,778

Summary

From this review of the present programme of Calcutta under the various Government of India schemes it can be concluded that current housing policy is nothing more than an ad hoc assortment of projects with little or no relation to real needs or even the realities of the total housing problem. Calcutta's record in housing is undoubtedly worse than that of Bombay or Madras, but is not much different than that of most other Indian cities. In short, the present Government of India programmes for social housing schemes (see description in Table 11) are themselves a miscellaneous assortment of rules, regulations, rewards, and redundancies. It leaves the various house building agencies little choice but to scramble for grants and loans to invest in 100 units of middle income housing here, 200 units of low income housing there, and so on.

There is need for a total rethinking, leading to a reorganisation of the overall role of Government in housing. More emphasis is required on

Table 11 HOUSING AND RELATED SCHOLARSHIPS SPONSORED BY THE GOVERNMENT OF INDIA

SCHEME	PURPOSE	BUILT AND OWNED BY	FINANCING PLAN			OCCUPANT TENURE	Land Plus Construction	Annual Income	Other	LIMITATIONS
			Land Capital	Loan Capital	Construction By Owner					
Industrial Workers	To house industrial workers in the private sector including members of cooperative societies composed of workers only. Workers housed are restricted to those in registered industrial plants and registered co-operative societies.	State or local body Employer Coop society	50% 50% 65%	50% 25% 25%	- 25% 10%*	Renter Renter Purchaser	8,000 (regular 2-room)	Rs. 4,200	Max. mo. rent Rs. 36.00	
Low Income People	To give a broad coverage where such assistance is required by individuals, local bodies, nonprofit institutions, coop.societies, and health, charitable and educational institutions.	State or local body Coop.Society Individual	80% with max. Rs. 8000	-	20%	Renter, if flat	None	6,000	Max. of 25% of units for own employees	
Economically Weaker Section	To obtain through additional concessions skeletal housing of minimum standards and essential internal services; or small 2-room pucca multi-storey housing, same as Low-income.	State statutory bodies Housing Board Housing Coop.	75% 54% int.; 25-yr. loan	- 25%	-	Renter	6,400	3,000	Economic rent subject to subsidy	
						Other concessions Lower int.rate Longer loan period Exemption from state and local taxes				contd...



SCH-OE	PURPOSE	BUILT AND OWNED BY			FINANCING PLAN			LIMITATIONS		
		Land Loan	Capital Grant	Land and Construction By Owner	OCCUPANT TENURE	Land Plus Construct- ion	Annual Income	Other		
Middle- Income Group	To provide credit facilities for construction of houses and constitute a step toward development of institutional finance in the field of housing.	State agencies Individuals	Made by Life Insur- ance Corp.; 20% with max. Rs. 20,000 5½% int.; 25-yr. loan	Owner or Renter	None	Rs. 15,000	Rs. 6,000- 15,000	Min. of 400 sq.ft. Max. of 25% of units for rental in case of govern- ment owner- ship.		
Slum Clearance and Improve- ment	To clear worst slums in cities over 100,000 pop- ulation. For those unable to pay subsidised rents for pucca housing, to provide on a self-help basis, skeletal housing on open plots with washing plot- form and latrine. Provide minimum 2-room pucca housing in cities of high congestion.	Skeletal housing built by occu- pant families Plot developed by local agency	37½% 37½%	Exit Owner and Plot Renter	25% 25%	Rs. 1,250 (incl. Rs.150 for bldg. materials)	Rs. 3,000	Max. E.C. rent = Rs.3.00 for plot	Max. mo. rent- Rs.25.00	contd... 16

SCHEME	PURPOSE	BUILT AND OWNED BY	FINANCING PLAN		OCCUPANT TENURE	LIMITATIONS		
			Land Loan	Capital Grant		Land Construction	Plus Annual Income	Other
Land Acquisition and Development	To finance large-scale acquisition and development of land, thereby making building plots available to house builders at reasonable cost; also to associate, where possible, small- and medium-scale industries in the vicinity in accordance with the overall Master Plan.	Developed by state agencies including responsibility to repay loan	Made by L.I.C.:	100% 5½% int. 10-yr. loan.	Rs. Priority in disposal of plots for housing: 1st-subsidised public housing schemes	2nd-sale to those eligible under housing schemes not requiring any govt. financial assistance	3rd-sale to others using housing schemes	4th-sale to persons earning more than Rs.15,000/-year. Land plots shall be made available for essential services where not adequate.

1. N.B. - In case of loans to be sanctioned to individuals under low- and middle-income schemes, an additional $\frac{1}{2}\%$ will be added to interest as a charge by state government agency.
2. N.B. - This summary excludes schemes restricted to employees of specific employers: dock workers, tea plantations, etc.

establishing procedures of private financing so that families with steady income streams can build housing outside of the Government programmes. There is need to improve the architecture and construction techniques to conserve scarce materials, rewrite the building codes, introduce a constructive tax policy, and increase the density of new residential areas within the urban centres. All of these things, as vital as they are, still will not lead to the solution of the problem of housing the lowest income groups, however, which is the subject of this note. There can be no solution for this group until there is a realistic understanding of the problem factors of population and per capita income.

4. A REORIENTATION OF HOUSING GOALS AND STANDARDS

In a developing society like that of India one must give a high priority to the study of social and cultural problems in relation to economic development and concomitant urbanisation. Plans and programmes for the latter must be based on socio-cultural considerations and the capability of society to accept and adjust to change without disruptive effects on its fabric and value systems. The field of housing, in particular its physical organisation and design, is probably one of the areas of development and change which in a most crucial manner affects the daily way of life of the urban population, its social structure, its expectations and frustrations. It is in this field, then, in which social and cultural analysis and interpretation is most urgently needed. Unfortunately, very little is known in this area and only few attempts have been made to broaden our knowledge and to give us sufficient insight for planning and decision-making.

As a result, housing programmes often become synonymous with programmes for the provision of shelter, based on economic, technological, and management considerations only. The programmes for housing in India's Five Year Plans and the corresponding State Plans are illustrative of this. On the other hand one must remember that India's economic planning is directed towards the attainment of national goals which, because of tradition and political outlook, reflect a strong concern for social improvement and justice. But housing programmes all over the world tend to follow a similar pattern. In part, this is, no doubt, a result from the increased exchange of international "expertise." For instance, the United Nations report of "The Ad Hoc Group of Experts on Housing and Urban Development" gives the following two-paragraph definition of housing and urban development:

"The terms 'housing,' 'community facilities' and 'urban development' used by the group of experts connote the physical environment of contemporary society. This embraces all parts of a residential community and its location within a given geographical area; the roads, public services and utilities which serve the community, its relation by means of transport to other structures, scenes and activities of contemporary society; and the general physical pattern to which all these conform. 'Housing' thus constitutes the physical environment in which the family, the society's basic unit, must develop. Its improvement represents a tangible and visible expression of a rise in the general level of living."

From the family's perspective, however, housing is not 'shelter' or 'household facilities' alone, but comprises a number of facilities, services and utilities which link the individual and his family to the community, and the community to the region in which it grows and progresses.

"Housing and urban development are, in fact, activities where social and economic progress meet. These programmes are therefore essential for both, and they may in practice be major factors for balanced development in the setting of accelerated urbanisation. The provision of adequate housing and urban and regional development is accordingly nothing less than the provision of the physical framework in which Man's human, social, economic and cultural resources are released, enriched and integrated."¹

In a footnote to this definition reference is made to the report of another expert committee on the public health aspects of housing. It referred to housing in its present-day concept as the "physical structure that mankind uses for shelter and the environs of that structure, including all necessary services, facilities, equipment and devices needed or desired for the physical and mental health and the social well-being of the family and individual." It also saw housing as a "complex process involving phases of public health, planning, architecture, engineering, economics and finance, culture and social traditions, government and the behavioural sciences, so intertwined with one another that it is difficult to isolate a single element for study, analysis and discussion."²

Having stated these elaborate definitions the remainder of the 76-page report and its 50 recommendations make little further reference to the social problems of housing. The main part of the report centers around a discussion of administrative, technical and fiscal problems. No doubt, our limited knowledge and understanding of socio-cultural problems in their relation to housing and the lack of pertinent data did not allow for an extensive discussion of this subject. Put one cannot get away from the impression that the reference to socio-cultural factors is merely lip-service not to be taken too seriously. Unfortunately, a review of current housing literature supports this view although one can find a few notable exceptions.

Consequently, housing tends to become one of the areas in which a direct transplantation of ideas, concepts and standards from the developed part of the world to the less developed is more likely to occur than in many other fields of development. However, as Hobselitz points out in his essay "A Sociological Approach to Economic Development," a great number of scholars have been expressing views in which they envisage "that the

¹United Nations: Report of the Ad Hoc Group of Experts on Housing and Urban Development, Department of Economic and Social Affairs, (New York, 1962) p.1.

²World Health Organisation: Expert Committee on the Public Health Aspects of Housing, First Report; Technical Report Series No.225, (Geneva, 1961) pp.6-7.

development of underdeveloped countries depends not merely upon their adopting the economic and technological procedures of the more advanced countries, but also upon their coming to resemble them in social structure..."¹ This comment is made with particular reference to an essay by five United Nations experts on "measures for the economic development of underdeveloped countries." It is supported by the views of Kindleberger and Spengler in their evaluation of a number of World Bank reports. Hoselitz' quote from Kindleberger's review is of particular interest:

"Essentially, however, these are essays in comparative statics. The missions bring to the underdeveloped country a notion of what a developed country is like. They observe the underdeveloped country. They subtract the latter from the former. The difference is a programme. Most of the members of the missions come from developed countries with highly articulated institutions for achieving social, economic, and political ends. Ethnocentricity leads inevitably to the conclusion that the way to achieve the comparable levels of capital formation, productivity, and consumption is to duplicate these institutions..."²

As already mentioned, the lack of basic knowledge in housing and urban planning is even less than in other fields of development. Hence the chances for programming in the crude manner Kindleberger describes are quite obvious. But one cannot solely put the blame on the international expert. The local planners more than often seem to be as far removed from the problem they are trying to solve as their foreign advisors. In India this is, in part, a result of being educated abroad, but more often reflects the long standing dichotomy in the country's social structure which still seems to divide it into "Anglostan" and "Hindustan."³ Even a brief, cursory review of Indian housing and planning literature clearly demonstrates the validity of the above observation. The reports are indicative of either a lack of an ability for critical interpretation and evaluation and subsequent development of indigenous solutions or an unwillingness to accept and admit the fact that social and cultural adaptation to modernisation, economic development, and social change is a slow and difficult process which cannot be accelerated by coercion and imposition. No one has stated this problem better than Hilda Selem in her description of some postwar resettlement projects in rural Italy for the social, productive and moral rehabilitation of communities, that were either suffering from the effects of the fighting, or from long

¹ Bert F. Hoselitz: Sociological Aspects of Economic Growth, Chicago, 1960, p.55.

² C.P. Kindleberger: Review of the Economy of Trukey; The Economic Development of Guatemala; Report on Cuba, Review of Economics and Statistics, Vol.34, No.4 (Nov.1952) as quoted in Hoselitz, op.cit. p.55. The two other references are: United Nations: "Measures for the Economic Development of Underdeveloped Countries," (New York, 1957) and Joseph J. Spengler: "IBRD Mission Economic Growth Theory," American Economic Review, Vol.44 No.2 (May 1954).

³ Ashish Bose begins his recent essay "Six Decades of Urbanisation in India: 1901-1961" with the following remark and quotation: "The State of Urbanisation in India in 1901 was tersely summed up by William Digby in his book Prosperous British India as follows: 'There are two Indias: the India of the Presidency and the chief provincial cities, of the railway systems, of the hill stations ... There are two countries: Anglostan, the land especially ruled by the English, in which English investments have been made... and Hindustan, practically all India, fifty miles from each side of the railway lines...'

periods of economic stagnation and neglect:

"One must understand that planning of this kind is a new and strange thing in most parts of Italy. In England there exist social habits and relationships that enable the planner and architect to work efficiently without having to consider the inhabitants of their projects as much more than units in a statistical rearrangement. But in the undeveloped parts of Italy such activities may be met with suspicion or even hostility, because planning is either unknown or has been known only as part of an oppressive political regime. The designers of Orto Nuovo (Cutro) and La Martella have had to approach their public with caution, with sympathy and imagination, because they are conscious that they are invading patterns of life and social arrangements that are ancient and ingrained, and, however squalid they may appear in some ways, still enshrine warm and valuable human relationships."¹

The most difficult task in the design of a housing programme is the establishment of objective criteria for measuring deficiencies in the existing housing stock, and the development of goals and standards which are realistic and attainable during the various programme phases, and at the same time also representative of social goals and desiderata.

It is in this area where one easily tends to project one's own personal judgement and experience to a new situation, and where the less developed world and its leaders more than often are looking for models from the developed countries. Also, because of the inherent difficulty of arriving at reasonably accurate methods of measurement, broad generalities are applied to the evaluation of existing situations and to the programming of future development. For example, the previously quoted UN expert report on housing makes this statement:

"It is estimated that in Asia and the Far East only 60 per cent of the population in urban areas and 50 per cent in the rural areas are adequately housed; the remainder are living in unsanitary and overcrowded condition."²

However, the report does not contain a measurable definition for the words "adequate," "unsanitary" and "overcrowded."

A different aspect of generalities in housing standards is represented by the "two-room house." In India this has become a sacrosanct edict and part of Nehru's legacy because of his continual demand for nothing less than two-roomed units which, in his opinion, was the minimum acceptable standard for India's people. But when this view is bolstered by international expertise local planners seem to have accepted it unconditionally. The following excerpt from an editorial in the Journal of the Indian Institute of Town Planners, entitled "Economics Vs. Basic Planning Standards," is indicative of the prevailing attitude:

¹ Hilda Selem: "Urbs in Rure," The Architectural Review, Vol.122, No.727 (August 1957) pp.91-92.

² United Nations, op.cit., p.9.

"The basic standards in housing and planning are arrived at not only from considerations of cost but also from considerations of creating the desirable sociological and physical environment necessary for the healthy growth of the individuals and the community. Such standards have been established by various committees and technical missions. The Environmental Hygiene Committee recommended a two-roomed house as the minimum for a family. The U.N. Technical Mission on Housing, the later Seminar and Conference on Housing and Town Planning, and other reports published by national and international agencies concerned with housing and town planning all recommend the two-room house with adequate sanitary and other facilities as the barest minimum if the normal aspirations of healthy living is to be achieved..."

"These standards cannot be lowered, whatever be the community, whatever be its location and whatever be the economic situation in the country. Sub-standard housing is but a step towards slums. Deliberate sub-standard housing will defeat the very purpose of housing as it will lead to the creation of future slums; the basic standards must be adhered to at all costs."¹

However, when one examines the actual size of the recommended two-room units which is around 200-250 square feet, one cannot escape the impression that no thought has been given to the fact that the provision of two small cubicles of 80-120 square feet each is likely to result in a less livable environment than, for instance, in some of the early immigrant housing in Israel which provided only one general purpose room in the same amount of total floor area. In addition, under today's social and economic conditions of India it can be expected that the availability of a "second" room will make it more than tempting for the primary occupants to sublet it to another family.²

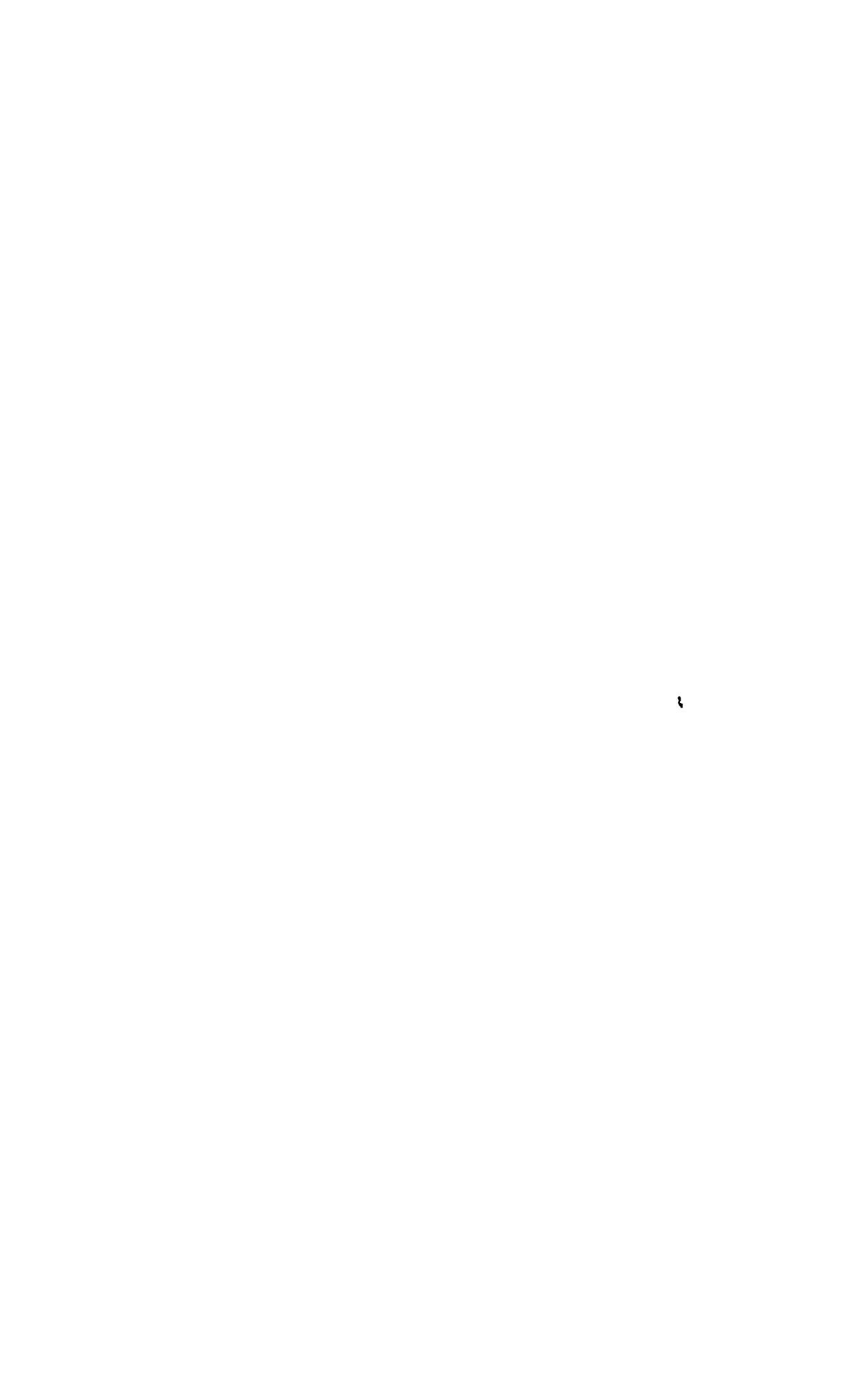
In contrast to the Indian rigidity it is of interest to note the attitudes of Latin American planners in a situation where housing conditions are about as deplorable as in India. The following excerpts are from a study on low cost housing problems:

"In determining quality, the acceptance of certain basic concepts is implied. First, common standards of health and security must be established. The generally accepted basic standards demand as a minimum that the dwelling meet certain conditions, such as having an adequate supply of water, a water closet, a shower bath, electricity, ventilation and sunlight, natural light, a kitchen for the exclusive use of the family, a sufficient number of sleeping and living quarters for the size and composition of the family, and that it be safely constructed and provide sufficient protection against the elements.

"Aside from the scientific criterion of healthfulness that would govern these standards, the public opinion, the culture and the economic structure of the country would have a hand in determining what they should be. Thus, the ideal scientific standards would be modified according to the prevailing social and economic conditions of the time and place. These standards should,

¹ Journal of the Institute of Town Planners, India, No.3, July 1955, p.1.

² This is already a frequent practice.



therefore, have a basic flexibility enabling them to be adapted to a variety of conditions and the actual situation that prevails...

"The minimum house should satisfy its tenants' basic needs for contemporary family living. Consequently, this type of dwelling will vary in size, according to the composition of the family, the occupational activities of its members, and their economic and cultural level. All the housing of social interest, no matter how minimum it may be, should have, in addition to adequate physical dimensions, proper sanitary facilities of its own, such as water, drainage and waste elimination.

"For many years numerous studies have been made to determine the basic standards for habitable floor space required in a building in relation to the number of persons in the family; for the size of the lane or lot on which the dwelling is built; and for the public and communal services required. These standards should be adjusted to the geographic, climate, and social conditions of each region or place."¹

What this report stresses is that cultural, social and economic conditions in relation to time and place are important factors in the design of a housing programme. Also, the need for flexibility to allow for regional adjustments is recognised.

The above reports and other housing and planning literature seem to agree on one point, namely, that there are three basic areas to consider in any attempt to establish criteria for the measurement of housing deficiency and demand. These are:

1. The environmental condition of housing;
2. The occupancy of housing units; and
3. The socio-cultural characteristics, attitudes and habits of the population.

In the first category, the standards of health and security are predominant. These include environmental engineering factors, such as adequate potable water supply and drainage, and the protection against the elements, against fire, and against structural hazards. Because of the exactness of the factors to be considered, measurable standards can easily be established in this area. However minimal, as in the case of the Calcutta Bustee Improvement Schemes, nevertheless they can be quantified and agreed upon.

Environmental standards are significant also from another point of view. As the abovementioned bustee improvement programme demonstrates, they can be applied irrespective of and independent of any other considerations and criteria which may be developed as part of a housing programme. For that reason one can consider this area as the most flexible component in a comprehensive housing analysis. Because of this flexibility no detailed considerations applying to this area are included in this note.

¹ Pan American Union: "Problems of Housing of Social Interest," Report of Ad Hoc Committee for the Study of the Low Cost Housing Problem, Inter-American Economic and Social Council, (Washington, D.C., 1954), pp.17-18.

The second area, that of occupancy characteristics of housing units, is less exact. For instance, Allan A. Twichell pointed out in his study on measuring housing quality that the test applied by the U.S. Housing Act of 1949 for measuring overcrowding "is a brutal one." He gives the following illustration:

"More than 1.5 persons per room means, for a four room dwelling, that seven persons must occupy it before it shows up in the block statistics for crowding. By this standard (if, in fact, the word is appropriate here), occupancy by six persons -- four sleeping in two bedrooms and two in the living room -- is not overcrowding regardless of the size of the rooms and of the age and sex of the members of the family."¹

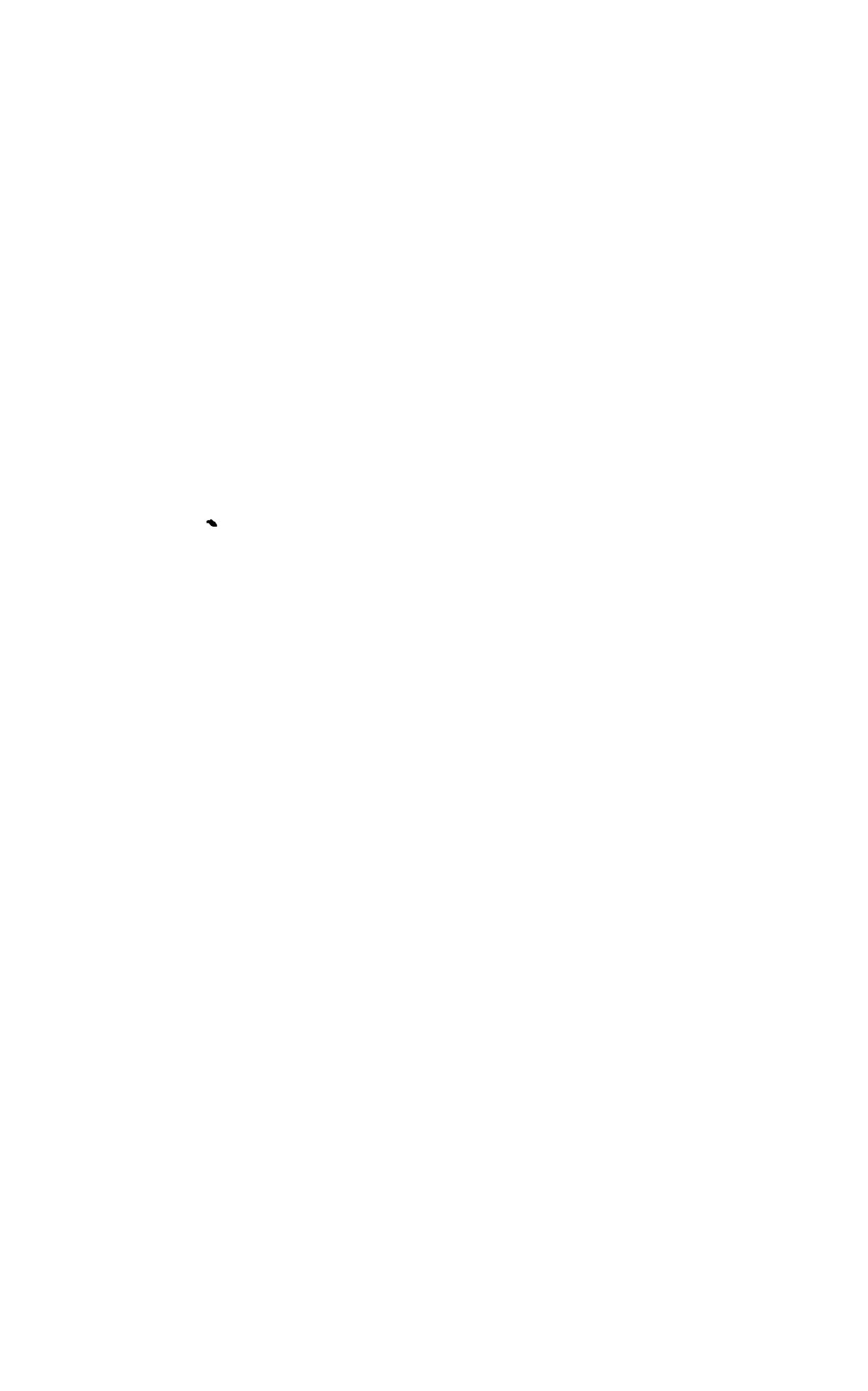
Despite this criticism, however, the occupancy rate expressed in terms of persons per room is one of the few measurable criteria which can be easily applied to an assessment of total housing demand. In the following, an attempt is made to show how this ratio could possibly be applied in a manner in which it would relate to the developmental status, of a particular country or area.

In economic theory housing programmes are often related to some of the general indicators of economic progress. Thus, for instance, the U.N. expert committee on housing related investment in residential construction to the total capital formation of a country and to its gross national product.² This prompted an investigation to find out whether there existed a measurable relationship between per capita gross national product and per capita housing stock as expressed by the room occupancy ratio. Data for some 30 countries in different stages of economic development and in different geographic regions were collected and plotted. The results are shown in Graph 2. They indicate a reverse relationship between the two factors following a curve approximating a hyperbole.

Although the plotting recorded four instances of substantial deviation which will be analysed later, the record, on the whole, is of considerable consistency. It is of interest to note that the upper cord without exception connects points which represent countries with severe seasonal climate variations resulting in high construction costs. Countries along this cord include Sweden and Finland. Along the lower cord one finds India, Ceylon, Italy, and Denmark. All of these have much milder climates.

¹ Allan A. Twichell: "Measuring the Quality of Housing" in Coleman Woodbury (ed.): Urban Redevelopment: Problems and Practices, (Chicago, 1953) p.22 -- In the U.S. a kitchen is counted as a room. Also, it is of interest to note that the standard discussed is applied in the country which has the highest standard of living in the World.

² United Nations: op.cit. pp.12-13.



The deviations from the apparent form can possibly be explained as follows:

1. In the case of Israel the country experienced a tremendous influx of immigrants in 1948-1952 resulting in a doubling of the population. By 1955, however, its G.N.P. began to rise rapidly as a result of a slowing down in immigration, increased productivity, etc. Housing construction was, on the other hand, lagging behind and occupancy rates were at crowded levels.
2. The U.K. figure may be explained by the fact that British housing standards traditionally have been high. This, coupled with modest construction standards, may well account for the low occupancy ratio despite the war time loss in housing stock. It is of interest, that the 1960 figures for the U.K. do not show any improvement in occupancy ratio although per capita G.H.P. rose by approximately U.S. \$600.
3. It is difficult to find explanations for Italy and Mexico, especially as the 1961 figures for Italy (.15/685) bring that country back into line with the overall pattern. Mexico's situation may be explained by an extraordinary disparity in incomes and living conditions.

Aside from the attempt to explain the reasons for the deviating marks, the Graph reveals three interesting benchmarks which can be useful in determining housing goals and standards. First, one can conclude, that the "affluent" housing standard of one room per person or more can be obtained only after the general standard of living has reached or is about to reach a level commensurable with a gross national product of £1000 (in 1960 prices). However, occupancy ratios do not improve significantly after that level has been reached although the rise in per capita G.N.P. will continue.

The second benchmark occurs at a density of 1.5 person per room which, as previously mentioned, constitutes the crowding threshold of the U.S. housing programme. This standard seems to be obtainable at a per capita G.N.P. level of approximately \$500. The cluster of nations in the vicinity of this mark include Chile, Cyprus, Greece, Japan, Puerto Rico, Poland, Venezuela and others.

The third mark at 2.5 persons per room, occurs at a G.N.P. level of £150. Countries in this cluster include Ceylon, India (on the low side) El Salvador, Honduras and Yugoslavia.

At this point the question may be asked how this kind of indicator could be used as a criterion for the programming of housing? If one takes, as an example, the case of India, it is quite obvious from the chart that a national target for the next 10-15 years could not exceed a standard 2.5 person per room. But even this may prove to be a too high standard. The following calculation for India's urban areas bears out this assertion. The calculation for a 2.5 target would be as follows:

1. Improvement of present 2.7 ratio to 2.5 for 1961 urban population	2,300,000 rooms
2. Provision of new housing for increase in urban population from 1961 to 1971 at 2.5 persons per room	10,000,000 rooms
Total	<u>12,300,000 rooms</u>

Assuming for the purpose of this calculation the validity of the two rooms per dwelling unit standard, a total of 6,150,000 dwelling units would have to be constructed between 1961 and 1971 in order to bring about the proposed slight improvement in urban housing density. This calculation does not, however, take into account any replacement of obsolete housing stock nor the relocation requirements of public and private improvement programmes. On the other hand, the Third and Fourth Plan housing programmes in the public sector account for only 2.2 million units in urban areas or slightly over one-third of the total basic need only. As it is doubtful whether the private sector will be able to fill the gap, and to provide for the additional replacement housing not included in the above demand figure, one can see that even the modest target of 2.5 persons per room by 1971 may be beyond India's capabilities at present.

But India is not alone in having to cope with minimal targets. The following excerpt from H. Drabkin-Darin's excellent analysis of Israel's housing problems in 1955-1957 is worth mentioning, in particular, as Israel's per capita G.N.P. at that time was several times that of India:

"If the primary and very minimal objective is taken to be a lowering of overcrowding to 2.5 persons per room wherever the number of residents is greater than this, Israel requires an additional 119,000 rooms, that is about 60,000 dwellings.

This calculation is based on statistics on density per room in Israel (Censal Survey, 1954), which indicate that 23 per cent of the population were living 1.5 persons or less per room; 33.6 per cent -- 1.5 to 2.5 persons per room; 21.7 per cent -- 2.5 to 4.0 persons per room; and 21.4 per cent -- over 4 persons per room. Information on 0.2 per cent was not available.

"It may be assumed that the replacement of 105,000 unsuitable and temporary dwellings would solve 50 per cent of the problem of overcrowding to the point suggested above. It would therefore be necessary to build the other 50 per cent, amounting to 30,000 dwellings.

"That would necessitate the building of approximately 3,000 dwellings a year, for the next ten years, in order to liquidate those districts in which overcrowding is at present particularly severe

"If we sum up all the annual housing requirements listed above -- current needs (24,000 -- 26,000 dwellings), replacement of provisional and unsuitable housing (10,500 dwellings), and a general reduction of overcrowding in the country (which would necessitate the building of 3,000 dwellings a year) -- we see that it would be necessary to build about 40,000 dwellings a year for a decade in order to approach a serious solution to the problem.

"At present building in Israel falls well below this desired amount. In 1952 some 20,000 dwellings were built in the country, and 27,826 in 1955. Despite all the achievements of Israel in building, it must therefore be stated that the present scale of building is far below the most urgent requirements of the country.

"Hence our national economic and social structure urgently demand that an extensive and comprehensive building activity be maintained at a tempo far greater than the present one."¹

¹H. Drabkin-Darin: Housing in Israel: Economic and Sociological Aspects, Tel Aviv, 1957) pp.220-221.

In a later section of this report room occupancy standards are applied to measuring housing demand in the Calcutta Metropolitan District.

The third area influencing housing standards and design criteria, that of social and cultural characteristics, is the one in which quantification is most difficult. Also, as has been mentioned before, accurate information in this area is scanty and "much of what has been written on this subject is a product of premature generalisation based on limited observations of Western experience."¹

In one of the recent studies on the impact of economic development and urbanisation on the traditional ways of life and culture, K. William Kapp raises the following questions:

"Finally it may be worthwhile to raise the question of the effects of urbanisation in India. What kind of cities are the urban settlements of India? Do they play the dynamic role which has been attributed to urbanisation in the West? Do they promote the changes in attitudes, outlook, social values and behaviour patterns which have led social historians and sociologists to the conclusion that cities are a strategic factor in the process of modernisation?"²

From his analysis it appears doubtful that the Indian city will play the dominant and dynamic role which cities in the West have played. He goes on to say:

"Indeed, it is conceivable that unplanned urbanisation which in India as elsewhere is merely another case of "growth by agglomeration" may not necessarily give rise to those basic changes in social institutions, inter-personal relations, and human behaviour which have accompanied the rise of cities in the West. In fact, it has been suggested that the cities of Asia and South East Asia may retain many of the characteristics of an enlarged village."³

Rapp supports this with a quotation from the UNESCO Report:

"Despite their relatively high densities, life has not necessarily become largely secularised, great differentiation of functions has not taken place and the way of life has not changed markedly for many of the indigenous population groups. Finally ... little has occurred in the way of increased sophistication, rationality in behaviour, cosmopolitanism of outlook or innovation and social change."⁴

If urbanisation has not had much influence on changing a traditional way of life, experience from other parts of the World indicates that this does not always mean a retardation of progress. The following quote from

¹P.M. Hauser (ed.): Urbanization in Asia and the Far East, UNESCO, Research Center on the Social Implications of Industrialization in Southern Asia, (Calcutta, 1957), pp.92-93.

²K. William Kapp: Hindu Culture, Economic Development and Economic Planning in India, (Bombay, 1963) p.13.

³Ibid. p.38

⁴Hauser (ed.): op.cit. pp.87-88



Japan's annual housing report is of interest. It reflects a concern for finding solutions which will facilitate change in combining the best elements of the traditional and "Western" ways of life:

"Away from their dwellings, the Japanese generally live in western style; but in their homes they revert to the traditional manner, discarding their footwear to sit and sleep on the matted floor. This double mode of living naturally leads to extra spending for clothing, furniture, etc. The shortcomings, however, are being corrected gradually through the guidance of the government and by the efforts of architects. This does not necessarily mean complete changeover to chairs, tables and beds; the approach, rather, is to devise a practical design combining the best features of both the traditional Japanese and western ways, while eliminating their drawbacks. The aim is to create a style that is functional, economical, and adapted to the climate of Japan, and to the ways of living of the Japanese."¹

In Israel, too, the problem of social change has been a matter of concern to the planners and administrators of housing. However, rapid acculturation and integration of the newcomers into the dominating "hebrew" society is their leitmotif:

"Finally, there is the most important problem of social and cultural integration, of people who, though conditioned by similar religious traditions and a common cultural heritage have, through centuries, lived amongst other nations assimilating many attitudes and patterns of social and personal behaviour, causing a diversity which hampers and slows down the processes of acculturation and social integration."²

At this point it may be necessary to codify some of the socio-cultural factors which may be in one way or another affecting housing standards in their broader dimension of environmental character and residential community organisation. It appears that the Calcutta Metropolitan District, does not possess any socio-cultural characteristics which would allow for "simple" development standards.

Sweden's successes in the field of housing and community planning are not only due to superior professional skill and economic resources, but are accomplished in a "simple" socio-cultural environment in a country of great homogeneity and social stratification. In contrast, India's situation is the most complex from a socio-cultural point of view.

From a design point of view one can then ask the question: Beyond slums, is there going to be anything else? The answer to this question is not easy because it will require great talent and skill not to create slums with a housing standard which in the opinion of many is below the acceptable.

¹ Government of Japan: Housing in Japan, Housing Bureau, Ministry of Construction, (Tokyo, 1963), p.6.

² Ben-Sirah and others: Housing Policy in Regions of Rapid Population Growth: of Israel, Planning Department, Ministry of Housing, Israel, (Tel Aviv, 1964), p.7.

However, it can be done because there is sufficient evidence to prove it. But one must first of all get rid of one's conventions and preconceived notions about doing things the proper way.

First, one has to give a new meaning to the word "density." The Swedish architect and planner Goeran Sidenbladh began a report on housing density at an international congress by quoting Ruth Glass, the noted British sociologist: "Density calculation can be used to uphold any doctrine that we wish to preach ... The assessment of density is an art, not a science." He then went on to say:

"In Sweden we do not talk about housing density as much as in some other countries. Reasons may be that the legislation regulating building activity does not know of zoning in the British or USA sense, and that Swedish planning deals mainly with areas where multi-family and multi-storey buildings are accepted by all parties. Mechanical application of numerical standards fixed in advance is almost unknown....

"Thus it is not considered possible to measure the qualities of a planning scheme or a built-up area by figures indicating numbers of rooms, dwelling or persons per acre or hectare, nor by floor-space or open-space index. Our opinion is influenced by the quality of design and by what comes under amenities."¹

In master plans, he admits one must be able to estimate the future population in a given area, but in Swedish practice it is only an indication not a fixation of density. Thus considerable leeway is given to the detailed design of a residential area. The density calculations used in this report should be given a similar meaning.

Israeli experience indicates that density to a degree influences social integration:

"All this had greatly affected naturally the planning practice and accepted standards of density. Because of the high cost of land and the high cost of its development and provision of public utilities and amenities, there is a growing tendency to increase density as opposed to the scattered and low density housing of the early years which has been also considered a factor responsible for the low pace of social integration within the Housing Schemes."²

Ben-Sirah's report brings out the other standard considerations in the planning of residential areas: the concepts of an integrated neighbourhood, a residential community and a satellite town.

"As already stated, the problem of social integration is paramount in considering Housing policy. It is not simple to determine the extent to which physical planning, or the detailed plan of a settlement, or a neighbourhood, or the design of a house, are actually affecting social inter-action and enhance or retard integration. Many studies have been carried out since 1952,

¹ Goeran Sidenbladh: "County Report for Sweden" in Housing Density, Proceedings of the XXII International Congress for Housing and Town Planning, Edinburgh 1954, p.176.

² Ben-Sirah, et al.: op.cit. p.32

aiming to evaluate the reaction of tenants in new developments to their physical surroundings. These studies indicate that neighbour attitudes and reactions and feelings of economic security or social status of equality, superiority or inferiority, with respect to immediate neighbours, and a host of other emotional impulses, are often of far more importance than the physical surroundings, as presented by the housing conditions.

"This indicated the necessity for planning not only the physical surroundings but also the grouping of people for settlement in housing projects, neighbourhoods or new towns. Indiscriminate mixing of neighbours of different background will not do. It has been found that some groups get on together well, while others are full of mutual suspicions. The whole matter requires selective administration."¹

If the above destroys the physical planners' dream of integration and mixing people in his neighbourhoods, even Markelius, the former planning director of Stockholm, gives a blow to the advocates of satellite communities:

"Reference has been made to these new districts as independent communities and they have been inaccurately represented as a kind of satellite town. Publicity in connection with the vast and risky undertaking for the development of Vallingsby has, with the essential and desirable aim of stimulating interest, been more popular than precise. We who have had charge of the planning work, have, right from the beginning, been quite clear on the subject and have often pointed out that these town sections or suburb groups cannot be expected to function as satellite towns in the proper sense. The distance to the town's main working districts and to the great magnet, Stockholm City, is far too small."²

The distance Markelius refers to is, in the case of Vallingsby, ten miles, in the case of Farsta, another similar development, 7 miles. The important point, however, is that "the Stockholmer at Vallingsby, Hogdalen or Farsta still remains a Stockholmer as much as the inhabitants of Ostermalm, Sodermalm, or Kungsholmen...".³

There are probably no other planning concepts and standards that have helped to destroy the urban environment more than Ebenezer Howard's garden city and satellite town, Clarence Perry's codification of the neighbourhood unit, the German norms for light, air and distances between buildings, and, of late, American standards for road and pavement width. In La Martella, financed from UNRRA funds, "the budget was too restricted to permit of anything but the simplest of structural methods and local materials. House-types and elements, such as doors, windows, grilles, etc., have been almost completely standardised, and these bring the discipline of repetition into a townscape otherwise characterised by considerable freedom in the disposition of buildings in relation to one

¹Ibid. p.11.

²Sven Markelius: "The Structure of Stockholm," in G.E. Kiddersmith: Sweden Builds, second revised edition, (New York 1957), pp.24-25.

³Ibid. p.25 (the three last-mentioned districts are part of the central city).

another and the roads that serve them....The result is still, clearly, a town of people living close to the subsistence line and not endowed individually or collectively with any surplus of goods or equipment. Yet for all its dirt roads and simple construction, the town is as rich in character as its inhabitants, and the two characters are complementary."¹

¹Hilda Selem: op.cit. p.96.

5. THE OPPORTUNITY FOR A MASSIVE LOW COST SETTLEMENT PROGRAMME

Introduction

If slum formation in Metropolitan Calcutta is to be cut back in the future, it will be necessary to devise a programme to provide mass housing. Such a programme cannot look to large Government subsidies to meet its requirements, but must rely to a great extent on the people themselves to pay for their own shelter. This means that housing of the cost now being built by low income people must form the essential ingredient in any mass housing programme. The funds available from Government should be allocated to providing an urban environment, whereby the most detrimental effects of this type of housing can be minimised and the in-migrants introduced to urban living. Such a programme calls for the acquisition of large land areas to provide project sites and the installation of the community facilities necessary for a decent and healthy life. This type of programme called "open plot development" is already being attempted in New Delhi and Madras.

The majority opinion among planners to date has been generally opposed to open plot development. No projects of this type have been undertaken in West Bengal to date. The Institute of Town Planners went on record as opposing open plot development at their conference in 1956 when they passed the following resolution which still stands:

"The Open Plot Scheme is merely a housing scheme for the very low income groups i.e., those that can only pay Rs.2 or Rs.3 per month as rent, and does not help to clear slums."

"In the considered opinion of the Conference, the adoption of this scheme in bigger towns and cities will lead to the creation of further slums and would also result in an uneconomic use of the land obtained after clearing slums, and hence it should be deleted altogether."

"If at all the scheme is applied then it should be confined only to towns having a population of 50,000 or less and the present standards prescribed in the scheme should be revised to conform to the standards recommended by the Conference for villages."¹

¹Brief Report and Recommendations of the 1956 Seminar" in Journal of the Institute of Town Planners, India, No.9, January 1957, p.23.

There is a great reluctance to accept the concept of housing as temporary and with deliberately set low standards as compared to western definitions of what constitutes "decent living." Nonetheless, more and more leading professionals, who have had first hand experience with these problems, are coming to the conclusion that the only real opportunity for mass housing lies in this direction. Well known experts such as Rafael Pica, Ernest Weissmann,¹ Charles Abrams, have spoken out in favour of this type of housing as perhaps the best that is possible today.

The Madras Experience.

The Madras State Housing Board has earned the distinction of being one of the best house building organizations in India. Since the formation of the Board in 1961, out of the old Madras Improvement Trust, until today Madras has been fortunate in having a highly motivated and active housing programme. Under the dynamic leadership of the senior officers Madras has consistently sought out and spent more than its allotted share of Central Government subsidies, by absorbing the unused quotas of other States. Furthermore, the Housing Board has enjoyed the confidence of the State Government and has received State funds beyond the immediate obligations imposed by the Central schemes. In short, Madras has a proud and impressive record of success in the house building field. Under existing conditions it is difficult to see how they could have done any better.

Up to 1966 the Madras State Housing Board had built 10,572 dwelling units and developed 7,451 plots. Of these 4,653 units, 6,658 of open land plots were for relocation of slum families.

Nonetheless, the significant fact, acknowledged by everyone in Madras is there are vastly more people living in slums today than in 1950. In 1950 it was estimated that there were approximately 30 slum areas. Since then 180 areas have been cleared -- a sizeable achievement by any criteria -- yet today they estimate that about 700 slum areas exist. Roughly 6 lakhs of people live in these slum areas -- more than double the 1950 slum population. These figures stand in grim evidence to the futility of existing slum clearance techniques. It can be concluded that if Madras -- with their expertise, and comparatively well-financed programme -- cannot sort the slum problem then no major Indian city can.

The Madras State Housing Board has experimented with two types of low cost housing: open plot development and transit housing camps. The latter consists of large buildings of about eight units each made of country wood frames covered with woven cocoanut matting and low brick walls. These units are used to house families from the slum areas during the time that

¹United Nations: International Action in Asia and the Far East, Housing, Building and Planning, No.9, September 1951, pp.44-69.

the permanent tenements are being built on the original site. The usual duration of a family's stay in the transit housing is about one year. Then they move to their tenement unit often back on the very site they occupied as squatters. Because the transit camps are considered short-term housing no environmental facilities have been provided on a permanent basis. The latrines are of pucca construction. The water supply is carried in from tubewells and taps located on nearby streets. The paths are not paved and there is no lighting. As a result the transient camps provide a very low standard of housing really no better than that found in the slum areas themselves. There is no rent charged in the transient camp. About 600 units of this type of housing are provided. The reason for not improving the site to a level of the environmental standards used in the open plot areas is the desire of the State Housing Board to make it absolutely clear that the transient camps are only temporary locations for short-term occupancy.

Open plot development on the other hand is considered permanent housing. They provide 1,000 square feet per family, but at an overall density of 25 units per acre, with a 20 x 30 mud platform, a pucca lavatory and bath (650-750 rupees) in one corner of the plot, so that one lavatory and bath unit containing four lavatory-bath pairs can be placed at the corner of four lots and serve four families. In addition, each family receives Rs.250 worth of raw materials in the form of bamboo, thatch, etc., and Rs.32.50 each, the latter to be used for the employment of skilled labour which would be combined with the labour of the renter himself in the construction of the unit. Thus the total construction cost, excluding the cost of the land, is approximately Rs.1,000 per family. For these units the families are charged Rs.3 per month; however, only about half the rents are actually collected.

These open plot units were constructed on the basis of combined State and Central financing, with a very high level of subsidy involved. The State does not want to raise the rent to a level that would pay for the projects. As most of the open plot schemes are located on the periphery of the city, and to induct people to take up residence there, the rents must be very low to compensate for transport inconvenience involved. Also, one alternative to living in the open plot units is to squat on open land and pay no rent at all. The open plot units are not sold on a hire-purchase basis (nor are their pucca tenements), for they feel that this would lead to resale of the plots to persons for whom the plots were not intended.

The open plot developments were built as part of a large scheme which included approximately 1,000 open plots and 1,000 tenements, the total scheme coming to approximately Rs.104 lakhs.

The Government of India was willing to finance the project 37.5 per cent GOI grant, 37.5 per cent GOI loan, and 25 per cent Madras State grant, but since the total cost exceeded the maximum level the GOI was willing to finance, the rest was a subsidy by the State Government. Of

the total Rs.104 lakhs, the GOI provided 52 lakhs and the State provided the rest.

All tenements constructed by the State of Madras are maintained by the State, but the open plot schemes are not maintained by the State. It is up to the rentee to repair his hut, bath or flush latrine if they fall into disrepair. The open plot schemes are, however, managed totally by the State; that is, all rent collection is done by the State Housing Board and the property is all retained by the State. The State Housing Board does not have any social management programme to introduce residents to the correct operation of the facilities.

The open plot developments seem to be popular with the residents. They feel that they have more space than in the tenements, the rents are lower (tenements rent for Rs.10 per month), and they prefer the feeling that the structure is their own. The State Housing Board, on the other hand feels that open plot development for them is very expensive in the sense that it is heavily subsidised and rent collection is disappointing. Furthermore, there is a reluctance on the part of Board officials to accept this type of housing as being a satisfactory solution to housing lowest income people. Nonetheless, there are plans for developing another 5,000 units.

The Housing Board is also experimenting with several varieties of small pucca structures which they favour as a solution to low cost housing. These units are being built for around Rs.10 per square foot, but cursory interviews indicate that these are not yet particularly popular. It is difficult to tell to what extent their location affects their popularity.

The Jhuggi Jhonpri Scheme, New Delhi

Many of the ideas for low cost housing have been tried in various forms in India. One of the better known of these attempts is the Jhuggi Jhonpri Scheme, in New Delhi. Here approximately 20,000 families have been moved to resettlement sites at the rate of about 2,000 families per month. Though the sponsors of the project within the Municipal Corporation of Delhi do not think the programme has made any appreciable reduction on the number of squatters and other slum families in the city, it still represents a sizeable programme effort.

The programme is thought of as a relocation scheme. Agencies requiring sites occupied by squatters request the Delhi Housing Commission to remove the families to a site within the Jhuggi Jhonpri Scheme. When the decision is made to move on a particular site municipal corporation trucks, along with demolition gangs and police, execute the move quickly, taking each family, along with its possessions, and the building materials of their present hut to the new site. Here they are usually allocated a 25 square yard plot. (There are also 80 square yard plots and apartment blocks used in the scheme, but their relevance to the low cost housing

recommendations in this report is less significant.) The family then erects their own shelter on the plot assigned.

The family is given a one-year lease by means of a site allocation slip. The rent of the site is generally around six rupees a month, but in fact rent collection is so haphazard and difficult that monies realised in this way fail to even cover the cost of administration. Frequently the tenant will elect to sell the rights to a site to another party not otherwise eligible for prices ranging between Rs.100 and Rs.200. This practice is particularly true in areas with the 20 square yard sites. The family then moves back into slums of the city. As a result some parties have been able to obtain "allocation slips" to two or three contiguous plots and erect substantial pucca houses. The general opinion seems to be that nothing can be done about these houses once constructed -- albeit illegally.

The housing which is constructed on the 25 square yard plots is primarily of a kutchha nature, however, some pucca and semi-pucca structures have also been built. Site coverage is up to 75 per cent. Community facilities are on a shared basis: one latrine per five families and one bath per six families. These facilities are located in pucca structures at the end of the rows of plots. Water is supplied through tubewells. The overall plot layout is of a general superblock concept with a grid-iron system of pedestrian pathways of about 10 feet in width. Most of the housing has three common walls with its neighbours. The average cost per unit is Rs.1,000.

A large number of commercial and semi-industrial uses are carried on within the project sites. The plan itself allocates space for commercial activities but nothing has been done formally to utilize these areas. As a result many small commercial enterprises mostly selling tea, pan, and other minor goods have sprung up as squatters on the fringe of the project and along the major roads. Many of the project families are conducting some kind of semi-industrial activity on their plot sites as well. Handicraft industries, the reprocessing of scrap metal, cutting of scrap wood into kindling and other such activities are extensive.

There is a site management office at each area and these offices have an authorised strength of over ten persons each. In practice there are many vacancies on the management staffs and the overall management of the projects is very lax. There is no programmed effort to tie social services or urban community development type activities into the programme.

Many people consider the Jhugki Jhonpri Scheme to be an inadequate solution to the slum problem. It has many critics and detractors that consider it a failure. Though there is much that can be improved there is no doubt that it is an important step in the right direction. Basically, it has proved conclusively that this type of housing can be provided at a massive scale if land is available. It has proved that the slum inhabitants will accept this type of housing (though the very distant sites selected have

caused much hardship and is the reason given by those families that have left to return to the city slums).

Its shortcomings are glaring, but correctable. A better land use plan is a matter of design. The lack of management can be overcome by trying the management proposals included in the CMPO proposal -- namely the adaptation of the thika tenant system. The distance to the city and places of employment can be overcome through the concept of temporary housing sites and the movement of the low cost housing site always to the immediate fringe of the city, but always where it can be connected with good mass transit facilities.

In short, the Jhuggi Jhonpri Scheme provides clear proof of the underlying value of the concept of low cost housing as a mass solution to improving the living environment of lowest income people and should prove to be the cornerstone for still better projects that are possible at even less direct cost to government.

Conclusions to be drawn from Madras and Delhi Experience

Both the low cost housing experience in Madras and Delhi point to similar conclusions. Most surprisingly, and this is supported by our experience in Calcutta as well, the slum dweller does not seem to be highly motivated to desire high quality housing. There is no sense of critical importance placed on the quality of the house itself. In fact it is apparent that location of living space is more important than quality of living space. When pressed for information on what kind of housing they wanted their comments almost invariably turn on points in the environment -- particularly better water supply and drainage.

This conclusion was also drawn in several organised studies done in Latin America which were referred to by Dr. William L.C. Wheaton, of the University of California, in his talk at the International Federation of Housing and Planning Conference in Tokyo last May. There it was found that housing came behind such wants as better education and employment opportunities. The current emphasis placed on providing, at largely public expense, pucca standard housing units for lowest income people may be an allocation of resources not in accordance with the priorities that they would choose for themselves. Therefore, low cost housing such as found in Madras and Delhi schemes may more accurately reflect the aspirations of lowest income people than the vastly more expensive tenement housing also provided.

It is obvious, however, that both the Madras and Delhi schemes fall far short of the optimum level that is possible in this type of housing. Management of the projects has proven to be extremely difficult in both cities and the low level of rent collection is a clear indication of the difficulty. There is a phenomenon which is frequently alluded to by

officials that lowest income people once admitted to public housing seem to feel that because it is government housing that they should not be required to pay rent. This of course makes a very difficult management situation which must be corrected if there is to be a successful housing programme for lowest income people.

Opportunities for the Calcutta Programme

In Calcutta analysis and experimentation will be necessary to arrive at an appropriate programme. This must also build on actual experiences such as those discussed above. In the following paragraphs a number of concepts are reviewed as a first step in this process.

The first of these relates to the view that low cost settlement projects should be "temporary."

It is often said that there is nothing so permanent as temporary housing. And the difficulties of moving people -- particularly low income people -- from their homes are well known. The idea of "temporary" as used here could be somewhat different than other proposals for temporary housing units in that it assumes occupancy up to fifteen years. All structures to be built will be restricted to one-storey buildings of generally semi-pucca construction. The financing of the structures will be so arranged that the units are completely amortised by the end of the time period when it is proposed to terminate the housing in a particular location. This programme is based on the assumption of an on-going development programme building upwards of 40,000 units per year. This will insure a constant supply of relocation housing always within a short distance of the existing housing which is to be eliminated for other higher economic uses.

Basic to the concept, and underlying the need for housing of this type to be temporary, is the assumption of continuous growth of the city. The sites selected for temporary housing areas will be on lands at the fringe of the city which in ten or fifteen years will be required for permanent construction of industry or other types of housing. The necessary roads and utilities can be put in advance and used for the temporary housing on the site and then converted to the permanent uses later on. The residents of the temporary housing can be relocated to a similar facility a short distance further away. In this manner the city can expand in a logical and economical pattern. The land required for permanent construction will be brought into the market in an organised way, in the locations required by the overall development plan.

If temporary occupancy of land on the urban fringe by low cost housing followed by the use of the land for permanent urban construction can be made to work, many very significant problems of city growth dynamics can be solved. At the moment the fringe of the city is rapidly proliferating into a new ring of slums which threatens to choke the city's future growth.

In the absence of enforceable police powers and in the face of the overwhelming need for shelter space the city stands powerless to control this growth. All techniques of trying to establish low income housing projects at great distances from the city centre and places of employment have always failed, yet it is only in outlying areas that land costs are low enough to permit such projects. By introducing the idea of a temporary use of urban fringe land both problems are solved. The development which is going on regardless, becomes controlled and the location is close enough to be attractive.

An additional benefit of the concept of low cost temporary housing is the opportunity of building at higher standards later on. The great shortage of funds and the pressures of the problem have combined to produce so called "minimum standards" for permanent pucca housing which are so low that they may well be future slums of the next century. Pucca housing built today with a life expectancy of at least 60 years sets the form of the future city in brick and concrete. It is not unreasonable to expect -- and as a minimum hope -- that the Indian city of the Twenty-First Century can be a vastly better place to live: birth control can become effective; alternative places of rural to urban migration developed; the national economy greatly strengthened; and new construction technology become available. To postpone as much as possible the commitment of large areas of urban space to forms of development which may prove totally unsatisfactory in the future seems logical and appropriate at this stage of India's development.

The land acquired under such a programme would form an urban land bank of great value in assisting the eventual renewal of the city in the years ahead. The best that can be done today may be unacceptable in the future, but if temporary housing communities are built and the land brought under public control the renewability of the city is assured and eventual permanent construction can be in tune with the conditions of the future.

The obvious difficulty with this approach to temporary housing and the organised expansion of the city is the demonstrated reluctance of the Government to take the necessary actions required to relocate families. This problem in the end must be faced if progress of any sort is to be made in the city. Development progress throughout history has never been painless. The less money available the more painful the transition of development has been for the people. There is no substitute for the rigorous prosecution of the development programme. No plan, no matter how promising, will ever implement itself. The final test of progress will be whether or not the hard decisions are made that will permit an aggressive management of the programme. In this respect proposals for a low cost temporary settlement programme are no different than any other proposals made for the development of Calcutta.

Analysis of the Cost Items in the Programme

In order to undertake a massive urban settlement programme it is

necessary to identify the individual components of which it will consist. They can be divided into two groups: those costs which must be amortised with the useful life of the housing unit and those costs which are convertible into assets at the end of the useful life of the housing unit.

Among the costs to be amortised in the first group are:

1. The cost of the housing unit itself.
2. Amenities serving only the population of the housing unit.
3. The interest on the capital required for the housing unit and expendable amenities.
4. The reserves for vacancies and maintenance in the project.
5. The taxes on the land and housing unit.
6. The cost of management for the housing project.

Among the costs which can be considered assets in the second group are:

1. The cost of the land.
2. The cost of site preparation and amenities that have a useful life beyond that of the housing unit itself (such things as filling of the site, water mains, trunk sewers, and major roads, would be in this category).
3. Interest on the capital required for the land, and for long-term improvements, which must be secured.

If a settlement programme is to be without direct subsidy it is necessary to assign each of these costs to a source of revenue sufficient to meet the cost. The tenant is the obvious source of revenue and in the private housing market he carries the project without subsidy and yields a profit to the housing promoter and investors. However, to meet the massive housing needs of the lowest income people the monthly rents must not exceed R.15 per month and rentals at that level are not sufficient to cover the total cost.

Land Costs

The most likely way to reduce the total cost to the tenant is to free the tenant from the cost of the land and the carrying charges. This can be done either by subsidy, which has been projected here as excluding a truly massive programme, or by passing on the cost of the land to other parties. This latter possibility deserves full exploration.

In a rising land price situation such as found in the Calcutta area today, it is reasonable to suppose that the value of the land will increase during the life time of the project. This increase in value, if it maintains a rate of increase equal to the cumulative interest rate on the capital invested in the land, can be realized upon the sale of the land at the end of the project period to its ultimate public or private user. The lender of the original capital is then paid off in a lump sum with accumulated interest.

The obvious source of funds for this type of investment would be the government. These loans, which are in many ways very similar to those made internationally between developed and developing countries, would be a much better investment than the present system of subsidising housing directly. At the end of ten or fifteen years, depending on the project's planned life, the government would have its capital returned in full with interest as opposed to losing between 60-75 per cent in the form of subsidy in a permanent pucca housing project.

There are many other planning advantages as well. The government could sell the land for private construction according to the overall development plan for an area, thereby controlling the ultimate construction of the site. An urban land bank will be created which will make available sites for public purpose projects at optimum locations. Because land assembly will have been done, the ultimate private development of the site will be more efficient, thereby reducing the cost of public services, minimising of waste land, and simplifying the process of development by the private purchaser.

The cost of improvements of the site such as land filling, main roads, the trunk sewers and water mains can also be charged to the ultimate developer. Since these facilities have useful lives of 50 to 100 years they will be represented by the increase in the value of the land. In situations where filling is needed there is usually a two to four year period allowed for settling anyway, so up to 20 per cent of the time when temporary housing is on the site would not hold up other forms of development.

If Rs.1,500 were required for each housing unit to cover the cost of land and pro-rata cost of the long term improvements the monthly rental cost to each housing unit would be Rs.14 during a fifteen year amortisation period at 5 per cent interest. By passing on the charges to the ultimate developer a savings in the required rent of Rs.14 a month can be made. If this is done it begins to be possible to build housing which the lowest income people can afford.

The scale of organised land acquisition and financing is very great. To provide land for 40,000 dwelling units a year or 200,000 persons would require 500 acres of land annually. The cost of this land even on the urban fringe would be in the neighbourhood of Rs. 5 crore and an additional crore of rupees would be required for filling and the placement of the required roads and utility systems grid.

Another major benefit of this programme will be to accelerate the relocation of families from other areas which are required for public improvements. If the proper approvals by government are obtained, housing in the proposed low cost urban settlement programme can be used as alternative housing for slum dwellers who must be relocated. This would greatly assist development projects because relocation has proven to be one of the great obstacles to their rapid completion.

The Housing Unit

The costs of the project which are tied to the life of the housing units must be carried by the tenant. The largest of these is the cost of the unit itself. Obviously, permanent construction of the type now being developed by Government in the slum clearance programme is too expensive even if the land costs are not carried by the tenant. Such high building costs are not necessary in the type of temporary housing scheme under consideration here. Immediate savings can be made by placing the water taps, baths, and latrines outside the dwelling unit on a shared basis. Further savings can be made by building only one-storey buildings not requiring piling, structural steel, thick walls, and interior public spaces such as stairwells. Instead of square foot construction costs near Rs.25 there should be no difficulty in providing semi-pucca shell housing under Rs.4 per square foot. To achieve low rental levels, without subsidy, will require building costs in the neighbourhood of Rs.4 per square foot amortised over a fifteen year project life. It is possible to provide housing at three price levels if semi-pucca partial housing is provided.

The diagrams present just two of the possible housing types which might be constructed in the project area. The costs of such a unit are presented in Table 12. The overall cost is estimated to be Rs.668 which works out to less than Rs.4 per square foot. On top of that cost an estimated Rs.365 per unit is anticipated as the cost of the sanitary core and other amenities to be built in the project. Including allowances for taxes, interest on borrowed capital at 8 per cent, a management fee of Rs.1 per month, and a 10 per cent vacancy and maintenance charge, it will be possible to build these units to rent for less than Rs.16 per month amortised over a 10-year period and Rs.13 per month if amortised over 15 years. These estimates have been prepared merely to indicate that it is possible to provide minimum shelter without subsidy, except for the cost of the land at rents low income people can afford. The sketch is only illustrative. Much additional work must be done in the field of site design.

By way of illustration of the problems of building shelter units which have an economic rental at levels lowest income people can afford Table 13 has been prepared. It includes hypothetical rupee costs per square foot and uses 200 square feet as the size of the unit. The cost of the amenities included has been set at a standard of Rs.365 per unit. This figure includes the following unit costs based on the assumption that all facilities will be shared at the same levels as proposed in the pilot housing project previously discussed. These unit costs are as follows:

Water taps	Rs.33.75
Baths	60.00
Latrines	175.00
Garbage Bins	3.75
Schools	41.66
Dispensary	3.33
Paving	15.00
10 per cent Miscellaneous	<u>33.00</u>
Approximate Total	<u>365.00</u>

Table 12 Cost of a Basic Development Plan Unit^a

Description	Quantity	Rate ^b	Cost
<u>Total Cost</u>	200 SF	<u>Rs. 3.34/SF</u>	<u>Rs. 668.00</u>
1. Excavation	28 CF	40/1000 CF	1.10
2. Foundation			
a. brick soiling below footings	27 SF	40/100 SF	10.80
b. lime concrete footings	14 CF	200/100 CF	28.00
c. foundation walls	16 CF	210/100 CF	55.90
3. Backfilling and ramming	60 CF	46/1000 CF	2.80
4. Brick piers	18 CF	220/100 CF	39.60
5. Brick wall	51 SF	1/ SF	51.00
6. Brick plinth	184 SF	64/100 SF	117.80
7. Roof			
a. Sal ballah guiders	30 RF	1.10/ RF	33.00
b. Full bamboo purlins	526 RF	0.35/ RF	114.10
c. Split bamboo sub-purlins	229 SF	0.20/ SF	45.80
d. Kopra tiles	229 SF	0.30/ SF	68.70
		Sub-total	568.60
8. Assumed 10 per cent cost increase 1966-1967			56.90
9. Work charged establishment (2½ per cent)			14.30
10. Contingencies (5 per cent)			28.50
		Total	668.30

Notes: a) Based on 200 square foot unit as shown in Sketch 1.

b) Government of West Bengal, P.W.D., Presidency Circle,
Schedule of Rates, April 1966.

The monthly rental figures also include estimates of the annual taxes based on current assessment practice and an annual estimate of management costs per unit. Ten per cent has been allowed for a vacancy allowance and maintenance costs.

From this Table it is apparent that rental costs per unit are still significant in terms of what lowest income people can afford to pay. To achieve the goal of rentals at Rs.15 per month, it will be necessary to build at only Rs.3 or Rs.4 per square foot, depending on the length of amortisation.

Site Planning

When the low cost temporary urban settlement programme is underway large areas will be required for this type of use. One layout is suggested in Schematic Plan 1, following page 110 of the Basic Development Plan for the Calcutta Metropolitan District.

Table 13 Cost of Alternate Shelter Units Amortised Over 10 and 15 Year Periods at Eight Per Cent Interest

ANNUAL COST										
Rupees per sq. ft.	Cost per unit 200 sq.ft.	Cost of Amenities	Total Capital Cost	Amortised at 8% over 10 yrs. 15 yrs.	Annual Taxes	Annual Management	Total Annual Costs	10 yrs. 15 yrs.	10 years 15 years	Grant Total 10% Rents 10 yrs. 15 yrs. 10 yrs. 15 yrs. & Vacancy & Main
1	Rs. 200	Rs. 365	565	Rs. 84	Rs. 66	Rs. 9	Rs. 12	Rs. 105	Rs. 67	Rs. 96
2	400	365	765	114	89	11	12	157	112	151
3	600	365	965	144	115	14	12	170	152	167
4	800	365	1165	174	136	16	12	182	164	222
5	1000	365	1365	204	159	19	12	195	185	258
6	1200	365	1565	234	183	21	12	207	196	294
7	1400	365	1765	264	206	24	12	200	192	330
8	1600	365	1965	294	229	26	12	232	217	365
9	1800	365	2165	324	255	29	12	265	244	36
10	2000	365	2365	354	276	31	12	297	319	32

Schematic Plan 1 shows a basic grid for motor vehicle movement and major utility lines of about 550 x 1,150 feet, enclosing superblocks of about 14 acres. This form will support a wide variety of housing types, serving a variety of income groups with varying space needs.

This block is adaptable to temporary use for kutchha or open plot development and later change to housing types ranging from terrace houses to multi-storey flats -- with no substantial change even in interior utility lines.

Scheme I shows a pattern of development for temporary housing accommodating about 4,800 persons with a covered space standard of 40 square feet per person and shared sanitary facilities at the same standard as proposed for the Bustee Improvement Programme.

If developed with predominantly low-income five-storey structure with a standard of about 50 square feet of interior space per person and a coverage of less than 25 per cent, the block will accommodate about 7,000 persons.

At a higher individual space standard of 80 square feet per person, also in five-storey structures, the block will accommodate about 5,000 persons with a slightly higher ground coverage.

Both of these kinds of development may be considered as second-stage developments after the removal of temporary housing. In the latter context they represent increases in both individual covered space standards and in density. The density figures derived from these populations all fall in the high range. It should be noted, however, that geographic and topographic conditions will rarely permit such idealised development plans over very large areas. Densities in actual development plans will inevitably be lower for the same living conditions even where these principles are carefully applied.

The non-permanent construction proposed can be of several types with a variety of design solutions. In many ways, it will be similar to the type of construction that is already occurring on the periphery of the city. Essentially it attempts to provide an introduction to urban living while permitting a continuation of certain village-type activities such as handicrafts and minor industrial operations near enough to the city so that the population can be employed in urban jobs. The difference between current uncontrolled development and controlled non-permanent housing areas is that the latter will follow a set plan which looks ahead to conversion to permanent construction at a later date by designing the water system, sewer, drainage and roads accordingly. By careful organisation net densities of 400 persons per acre can be achieved which will be fully compatible with the densities for later permanent urban construction.

It is important to keep in mind that the design for the housing as described above is but only one of many possible approaches. The size of the land area used for this type of housing can vary greatly from a very few acres to several hundred acres. The location can be anywhere within the

city and not just on the urban fringe depending on the availability of particular sites. In short, the physical expression of the idea must be extremely flexible in its application to take advantage of every opportunity for construction.

Schematic Plan 2 shows diagrammatically the type of superbloc, shown in Schematic Plan 1, multiplied to form community groupings related to community core areas. This Scheme assumes that each block houses about 4,000 people. Typically, six blocks with a total population of about 25,000 persons are related to a core area containing community services and facilities for that population. The core will contain about 10 to 24 acres if secondary school facilities are included.

The physical arrangement shown is such that no residential unit in a Group is more than half-a-mile from any part of the core area and pedestrian (or bicycle) circulation does not have to cross motor vehicle roads in moving from any residential area to the core. Frequent or daily pedestrian traffic is thus entirely separated from motor traffic. This scheme also shows an idealised clustering of the groups adjacent to an area of existing development, all related to a larger community centre and all within one square mile of land.

Schematic Plans 1 and 2 are not suggested as designs for any actual project in the CWD -- they are only illustrative. However, they do demonstrate that decent basic living accommodations and environment can be provided at quite high densities.

Management Problems

The scale of the programme is vast. If successful, over 2,000,000 people will be living in dwelling units that are related to either the bustee improvement programme or the low cost temporary urban settlement programme within the next ten years. The management of so great an effort will be very difficult under any circumstances. It is clear that from the beginning every effort must be made to reduce the burden of management and at the same time insure that the revenues anticipated are fully realised. This problem has been solved in the bustee tenant system.

The problem of rent collection and management is found in all housing projects run by the Government. There is a great reluctance on the part of Government to enforce rent collection procedures and the powers of eviction are difficult to use effectively. As a result, in projects such as the Jhuggi Jhonpri Scheme in Delhi rent collection does not even cover the cost of management let alone make a contribution toward paying for the project itself.

Within the bustees of the city, of course, there is a totally private rent collection and management system already working. The centre of this system is the thikka tenant who owns the bustee huts. There are approximately

20,000 thika tenants in Calcutta who own the 30,000 huts in the city. They have invested between 2,000 and 3,000 rupees in their huts and in turn select their tenants, collect rents, and handle their own evictions as necessary. They in turn pay rent to the land owner for their site. This system also often implies the exploration by the thika tenant of the families in their huts.

If controls could be imposed to limit the evils of exploitation, however, it might be possible to experiment with some variation of this system in a low cost settlement programme. It does have a number of advantages, as follows:

1. The private hut owner (modified thika tenant) becomes a buffer between the occupants of the housing and the Government. Since the Government is only the landlord and not the hut owner no protests over standards of the housing, treatment of the occupants, or methods of operation can be mounted effectively against the Government.
2. Since the private hut owner would be responsible for collecting rents and selecting, and if necessary, evicting tenants, the Government's responsibility for management is greatly reduced and their source of income from the project will be more reliable.
3. The private hut owner could bring to the project the necessary private capital for the individual shelter units thereby substantially reducing the overall cost to Government for the project. The methods used to attract the private capital can be flexible, to permit thika tenants to own various numbers of shelter units.
4. The system provides income and employment to individuals who would otherwise take a job that could be filled by someone else.

The Government could enter into lease agreement with each private hut owner regarding the time of occupancy of the site, the land rent to be paid, the services the Government would provide in terms of maintenance of the public spaces in the project and the sanitary facilities, and the standards required for the individual shelter units. Government might also consider building the shelter units directly and selling them to the individual owners.

If the low cost temporary urban settlement programme is implemented at the scale proposed here, the supply of shelter units should be great enough that rents will be kept reasonable by the law of supply and demand.

Another possibility of substituting private management of the urban settlements for public management would be to use industrial organisations in place of the above. There is already a subsidised industrial housing scheme provided by the Central Government. To date this scheme has not proved popular with either the industrialists or the workers. The industrialists have many reasons for rejecting the scheme, not the least of which is the additional costs that it imposes on their organisation to pay their share of the project cost. The workers have not appreciated the

scheme because the rents have been too high, even with the subsidy, and alternative housing in nearby slums has been considered socially more satisfactory. As a result the industrial housing schemes frequently have had a high vacancy, and there has been a reluctance on the part of all concerned to undertake this type of housing on a meaningful scale.

The problem of housing industrial workers is nonetheless a serious and important aspect of industrial development. The present difficulties in providing industrial housing can, in part, be overcome by adopting the approach of temporary low cost urban settlements as proposed in this note. Where a new major industry such as the new Pokaro Steel Plant is to be constructed, or an existing industry is going to be expanded, the construction workers can be housed in this manner. The present policy is to set aside company-owned land for construction workers to squat on during their employment. This invariably results in unsanitary, congested housing of an appalling nature. Instead, housing such as described in this note could be provided with the sanitary facilities, temporary community facilities, and basic road structure required to provide a tolerable living environment. It would then be feasible to plan for the orderly conversion of the construction workers' settlement into housing for the low income permanent employees of the industry once production starts. A substantial saving could be made in this manner as well as the realisation of immediate benefits from having a better housed construction labour force. The new industry would own and manage the urban settlement project and Government would not be involved in the project.

The industrialist can also play a role in the application of the temporary low cost urban settlement concept in the existing urban areas. The physical development plans for areas such as Howrah, within the Calcutta Metropolitan District, usually provide for large new areas of industrial land. The number of acres set aside for this purpose are the result of optimistic projections of industrial space requirements for a given planning period -- usually 20-25 years. In practice much of this land is never available for industry because of difficulties of land acquisition and assembly and the development of residential slum areas during the planning period. Furthermore, the present pattern of industrial development involves the location near the plant of low income workers' housing, usually of a slum character. This close relationship between residence and the factory is essential to minimise transportation costs to the worker as well as to minimise his housing costs.

By adopting the concept of temporary low cost urban settlements, in cases where an ultimate industrial land use is desired, has several important advantages to both the industrialist and the workers. The land area that has been assembled by Government as previously proposed can be allocated to industrial purchasers under specific conditions regarding temporary housing on the site for a prescribed number of years. There are several alternatives that could be explored and further talks with industrialists will undoubtedly suggest more, but for illustrative purposes the following suggestion can be considered.

Land could be leased to an industrialist for a period of fifteen or twenty years. As a part of the lease there would be an option to buy the site at the end of the period. The site would include land required for the development of a factory and sufficient space to house the workers required. The housing would be built by Government and sold to the industrialist according to the standards for the programme at cost. The lease rent would include the cost of maintaining the sanitary facilities, community facilities, and amortisation of the proportional cost of major roads, utility mains, etc., taxes, and management as well as the interest and carrying charges on the capital invested in the land. Rents on the housing units would be controlled to provide the industrialist with sufficient income to completely amortise his purchase price of the housing. The tenant selection, rent collection, and eviction would be the responsibility of the industrialist.

At the end of the lease period, if the industrialist wanted to exercise his right of purchase of the site, the burden of relocating the workers to permit expansion of the plant would also rest on the industrialist. However, a suitable relocation site should be offered by Government under the same general terms and conditions as before modified by local conditions prevailing at the time. In this way the area set aside in the development plan for ultimate industrial use would be developed for industry. Workers would be housed near the plant site during the decades before, hopefully, incomes have risen to the point where separation of land uses into industrial and residential areas is financially practical and socially desirable.

The Social Implications

There is a substantial body of literature that has been developed over the years on the general subject of "Who are the slum dwellers?" Yet, the results of these studies have not been successfully translated into the design of housing projects. The present pucca slum clearance projects have been severely criticised for their lack of adaptability to the real needs of the slum dweller. The low cost temporary urban settlements programme offers an opportunity to correct some of these failings.

The type of shelter proposed here represents a general continuation of the traditional forms of housing to which lowest income people are accustomed.

The bustee hut with its confined physical space defines one level of social space in the slum area. Even in cases where there are distinct religious differences the proximity of living areas seems to stimulate integration. This close proximity is not possible in the design of the four-storey walk-up structures built for slum clearance housing.

The one-storey structure is also generally preferred by slum dwellers. It represents the traditional and familiar form of housing and

has the practical advantage of immediate access to the open areas where so much of the slum dwellers' time is spent in both work and leisure.

The fact that the structures proposed for the low cost temporary urban settlement programme will be only partially finished, and therefore provide a very flexible arrangement for interior space, is another substantial advantage over the pucca slum clearance housing projects. Slum dwellers, because of their low incomes and marginal standards of living, need to make the maximum use of their living space. Pucca flats allow no adjustment to the very wide range of family sizes and incomes of the slum dwellers, but the proposed temporary shelters would have complete flexibility. It would permit the development of workshops, home industries, and schools, and sanitary khatals within the project areas. It would permit a family to acquire as much space as his family requires and his income can permit. This flexibility is possible because of the nature of the structure to be provided -- which can be rented out on a front-foot basis for any use desired.

The four main social factors to be considered are language, place of origin, vocation, and religion. The natural process at work in the bustees promotes social integration and harmony in the various slum areas by recognising these important factors in their development process. So, too, in the new low cost housing areas, these factors must be considered in making the provision of community facilities such as schools (in the mother-tongue), libraries, and social clubs as convenient as possible.

The process whereby a particular low cost temporary urban settlement becomes developed and occupied requires careful planning. At present the new migrant to the city comes alone and leaves his family in the village until he is settled. He goes to friends, usually from the same village, in a particular bustee and stays with them. It is unlikely that these migrants can be attracted to the low cost urban settlement areas directly. The very long-term bustee residents who have lived more than twenty years in a particular bustee are also very reluctant to move to any new location. Therefore, in the beginning the people most likely to be attracted to the new areas are the residents of the bustees which have been here from one to ten years and are somewhat settled, but still have not established permanent attachments to the bustee where they are located.

In the beginning it will be necessary to attract people to the new areas by extensive publicity and taking groups of potential thikri tenants out to the sites to see the areas for themselves. An organised effort to do this will be necessary on the part of the Government organisation responsible for the project. Once the social character of a particular settlement area is established it will tend to be self-perpetuating as new migrants will then come to stay with the residents already in the project area. Once again, the flexibility of the physical plan of the low cost temporary urban settlements make accommodation of these future residents

much easier than would be the case with pucca structures.

These many very important social considerations are compatible with the low cost temporary settlement programme proposed here. They add up to an additional important argument for this type of solution to the shelter problems of lowest income people.

6. PROPOSAL FOR A PILOT PROJECT

The ideas for low cost settlement projects discussed above may have merit but they must be tested. Experimentation will undoubtedly suggest many modifications and additions which will be necessary to make the programme fully workable.

It is proposed therefore that pilot projects should be initiated as soon as possible. The State Housing Directorate, the Calcutta Improvement Trust, the Howrah Improvement Trust, or some combination of these agencies should with CMPO act as joint sponsors of the project. CMPO's proposals and basic concepts have been presented to the Housing Directorate which has in turn indicated a definite interest in beginning serious experimentation along these lines.

For the first project, the appropriate agencies should designate a site of a minimum of 10 and preferably 18 acres upon which a low cost temporary urban settlement can be constructed for six thousand persons. Whereas it would be somewhat less expensive per capita to work with a larger area, this size has been suggested to make the project simpler to implement. If the area was still smaller, however, the population would become too small for evaluation and investigation and the per capita cost of utilities, schools, parks, health facilities and management would rise unnecessarily. Also the larger the experimental community the more the managerial problems will resemble those to be encountered in future projects.

The space will be allocated by an overall plan prepared jointly by Calcutta Metropolitan Planning Organisation and the sponsoring agency to permit different arrangements of building types and densities of population. These various areas would share a common set of community facilities. The individual families would be expected to pay economic rents for their housing accommodations plus the full cost of amortising the local infrastructure which is associated with the shelter units such as the sanitary core facilities, but a subsidy would be provided in terms of the cost of the land in the project.

Land Use Allocation

A total area of 18 acres will be required to execute the experiment

for a full community of 6,000 persons. The approximate distribution of land use will be as follows:

Residential (average density of 400 ppa)	15.00 acres
School sites	1.00 acres
Park site	1.00 acres
Dispensary	.03 acres
Shops	.10 acres
Roads (approximately 5 per cent of the total)	.37 acres
	<hr/>
Total Area	18.00 acres

The residential area will be sub-divided between the different patterns and shelter types to be tested. The community will need two schools. It is assumed that 16 per cent of the total population (960 persons) will be of school age. Out of this group 80 per cent will require school places in the primary school and junior secondary school. Each school will provide 10 square feet per student, with 45 students to the classroom, on a two-shift basis. An additional 500 square feet per school will be required for teachers facilities and offices. Each school will be 2,500 square feet and be of semi-pucca construction. A park area of one acre will be included in the community also.

A dispensary will be included to serve as a centre for medical advice, inoculations and distribute drugs. The dispensary will be approximately 400 square feet and be of semi-pucca construction. A small market area of .10 acres will also be provided as a location for the small daily service shops required. The shops will be built by their operators.

Roads within the community will be kept to a minimum as vehicle traffic will be light. Approximately 5 per cent of the site is anticipated for roads, approximately .67 acres. The total road surface will be paved.

Management Proposals

One of the essential ingredients required by this form of mass housing is management service. The management service will permit the rural migrant to be introduced to urban living in a systematic and appropriate way, as the proper use of community facilities and their maintenance are vital if this approach to environmental improvement is to be successful.

In this initial experiment, considerable attention must be given to perfecting the best approach to providing management services. This investigation should include both the organisation of the management staff and the services offered. The following group of seven persons are suggested as the initial management group for the experiment, however, flexibility should be maintained to permit the reshaping of the group as the experiment gets underway.

The Estate Manager	Rs.	350 per month
Accountant		250
Clerk		175
Social Educator		250
Plumbing Mistri		120
Sweepers (2)		120
Total Wages	Rs.	1,265 per month
Annual Wages		Rs.15,170 per year

The role of the Estate Manager would be to take charge of the general operation of the Estate. His functions include the collection of rent and supervising the rest of the Estate Staff. The Accountant will be in charge of keeping the financial records and the Clerk will assist the Manager and the Accountant. The Social Educator will be responsible for the urbanisation and the social integration of the residents. He will be in charge of educating the community as to the value and availability of inoculations and vaccination, appropriate use of the sanitary facilities, the location and purpose of the dispensary and other similar areas of instruction.

Estimated Project Financing

The basic assumption upon which this project proposal rests is that the cost of the land be contributed as a 100 per cent subsidy and that all other costs be amortised without subsidy from the rents of the occupants. All the cost estimates and rental projections used here, therefore, exclude the cost of the land. Table 14 shows the cost breakdown.

Table 14 Estimated Construction Costs Excluding Land and Major Infrastructure

Units (1200 units)	@ 200 square foot per unit	Rs. 802,000*
Community Facilities		
Schools	@ Rs.10 per square foot	50,000
Dispensary	@ Rs.10 per square foot	4,000
Utilities	@ Rs.365 per household	438,000
Roads	@ Rs.1.50 per square foot	57,000
	Sub-total	Rs.1,351,000
	@	126,900
	Total	Rs.1,477,900

*To be invested by Thika tenants.

The total estimated cost of the experimental project proposed here will be approximately fourteen lakh. This amount is divided between the shelter proposed to be provided by the thika tenants (7.2 lakh) and the environmental amenities provided by the Government (5.5 lakh) and reserves of (1.3 lakh).

The project management costs of Rs.15,000 per year, work out to approximately one rupee per unit per month. These costs do not include any allowance for overhead and supplies which should be included in a more refined estimate of costs. Also not included in these estimates are the costs to the occupants for completing the shelter units, the monthly costs for utilities service if any. These items too can be included when more refined estimating takes place. Nonetheless, it is apparent that costs of the programme can be kept within the practical limits required to make it subsidy free for the majority of families which now have no alternative to slum living.

Next Steps

It is essential that a sponsoring agency be appointed to initiate the proposed experiment in low cost temporary urban settlements. A specific site of 18 acres should be selected and CMPO charged with the preparation of a site plan for the area. The management team should be appointed and the required files and accounts prepared. All of these steps could with aggressive management be completed within six months.

A Government loan of 6.8 lakh will also be necessary to finance the cost of the improvements to the site and install the public facilities. This loan can probably be drawn from the funds allocated to the "open plot" housing scheme.

Details of the Evaluation and Analysis

CMPO will provide a professional team to carry on extensive studies and analysis of all phases of the project and evaluate the results over a two-year period. CMPO is prepared to assign a senior architect, finance expert, structural engineer, and sociologist to the work as well as the necessary junior staff. This team will assist in the planning of the project as soon as a satisfactory agreement is reached among all parties. The following items are suggested as illustrative of the kinds of analysis and investigation they will undertake. Other appropriate items will be added as the work progresses and this listing is not intended to be inclusive:

1. Physical Factors

The physical factors studies will consist of experiments in methods of construction to reduce costs and accelerate production; analysis of which elements of the shelter units can be efficiently

prefabricated at the site; which elements lend themselves to self-help projects; and what are the levels of required maintenance of various construction alternatives.

2. Financial Factors

Detailed cost records will be kept on all aspects of the project; analysis will be made to ascertain optimum rates of construction and sizes of projects from a cash flow point of view; the various alternative methods employed will be studied in light of all factors from a cost-benefit analysis, and alternative financing patterns will be proposed and evaluated.

3. Social Factors

Different physical plans will be subjected to careful analysis to establish their acceptability to the tenants; careful sociological records will be kept on the tenants of the projects; their opinions on all aspects of the project will be solicited at various times throughout the two-year period; and analysis of the various social management programmes will be made.

These studies will continue for two years with the overall purpose of preparing a complete report on the project from its conception onward. The results of the study would establish methods and techniques to be used in initiating a massive shelter programme in the Calcutta Metropolitan Region during the Fifth Five-Year Plan.



